INTEGRATION OF ENTREPRENEURSHIP EDUCATION WITH INCUBATORS AND/OR TECHNOLOGY TRANSFER OFFICES

There are a growing number of entrepreneurship education programs that are developing integration with university technology transfer offices and/or incubators. The Center for Advanced Technology and Innovation (CATI), a collaboration among several Wisconsin universities and organizations, is among the most complex models integrating technology transfer, incubation, and entrepreneurship education from multiple campuses. Other models are simpler. For example, the Berkeley Business Incubator in the Lester Center at the Haas School of Business is a business incubator for start-ups created by current students and recent graduates.

Overview

- *Economic Development goals are central.* While education is among the goals to be accomplished within these programs, economic development is often a strong priority and can dominate. CATI, for example, was formed explicitly to promote business development, workforce development, and technology innovation in southeast Wisconsin. The main goal of the Center for Commercialization of Advanced Technology (CCAT) (see below, affiliated with San Diego State University) is to move their technologies through the developmental milestones necessary for business success. Similarly, one of the primary goals of Stanford's Biodesign Network (BDN) is *to* encourage and facilitate invention, patenting and early-stage development of medical devices.

- *Public-private partnership.* Given the economic goals of these programs, partnerships can often encompass both private and public organizations. For example, the Center for Commercialization of Advanced Technology (CCAT) – supported by Congress and funded by the Department of Defense – is a public-private collaborative partnership among academia, industry, and government. Partners include San Diego State University (SDSU) Foundation and its Entrepreneurial Management Center, the University of California – San Diego's (UCSD) Jacobs School and UCSD CONNECT, and ORINCON Technologies, Inc. (a defense and commercial contractor) with support from the Space and Naval Warfare Systems Center in San Diego. The consortium-style CCAT intends to bridge the gap that exists between the generators of technology, the Department of Defense and the commercial marketplace. Stanford's Biodesign Network has a member base of nearly 900 academic and industry participants. A primary goal is to provide networking among individuals who work in the biomedical technology industry.

- *Co-location of Entrepreneurship education and incubation.* Some programs place entrepreneurship education with incubators. For example, Purdue's Center for Entrepreneurship is located in its new Discovery Park. This is a very visible commitment to integrating students with incubator firms. The University of Maryland's Hinman CEO program is particularly unique in that the students reside in the same building as their incubator-like facility.

- *Projects are a critical component.* As is true for entrepreneurship programs in general, project work is critical to these programs as they attempt to move technologies from the universities into start-ups. Student teams are formed around technology concepts, often including students with diverse backgrounds, with the goal of developing business plans.

- *Entrepreneurship education programs are multidisciplinary.* These programs often draw from technical disciplines in addition to Business programs. For example, CATI's program draws from students at Carthage College's ScienceWorks technology entrepreneurship program in which science students – from biology, chemistry, physics, mathematics, and computer science – are also trained in the basics of business and entrepreneurship. The University of Maryland's Hinman CEO program is open to all majors and usually has the following distribution: 1/3 from Engineering, 1/3 from Business, and 1/3 from a range of

liberal arts and science majors. The Hinman program is also residential, and students are placed in rooming arrangements made up of diverse majors.

- *Business School integration.* Entrepreneurship programs integrated with technology transfer and incubation usually involve students from entrepreneurship courses within MBA programs. When other disciplines are also involved, cross-fertilization of knowledge within project teams can occur. Business school faculty members also serve as advisors on projects.

- *Entrepreneurship education content development fostered.* Programs have developed curricular materials arising out of programs involving students in technology transfer and incubation. For example, Purdue's TTi program has supported case and course development by cross-functional and cross-disciplinary faculty teams. Faculty from Strategic Management, Organizational Behavior and Human Resources, Management, and Economics collaborated with Industrial Engineering and Management Science develop original case materials for use in a new cross-functional course in technology management. After sufficient testing in a classroom environment, these cases are intended for publication in book form. Another example is a collaboration between Purdue's Office of Technology Commercialization and TTi leading to a pilot course for the Krannert Engineering/Management Program entitled "Ideas to Innovation: Intellectual Property Basics".

- *Entrepreneurship student involvement creates competitive advantage for incubators.* Students provide a variety of low cost, yet critical, services to incubator firms that allow them to conduct a broader research and development process, broader and more accurate market studies, and preliminary business planning. These services are often considered an inducement for companies to move into incubator facilities.

- *Venture capital alliance development.* Many of the programs have formal or informal ties to the venture capital and angel community. A formalized program is Stanford's BDN Venture Partners program. Its venture capital partners help shape educational program development and participate as speakers and moderators at BDN events. On a case-by-case basis, BDN Venture Partners may also assist with market evaluation and technology assessment as well as providing contacts and resources for development/incubation of new technologies. http://mdn.stanford.edu/plsql/venture

- *Foundation funding available.* Foundations will fund these initiatives. The initial success of Purdue's Technology Transfer Initiative was guaranteed by an NSF IGERT grant. This grant will fund 30 Ph.D. students in Engineering and Science for up to two years each. Matching grants from Purdue will fund MBA students to team with the Ph.D. participants. Supporting courses and programs will be developed with the objective of facilitating the commercialization of Ph.D. research and developing researchers and business students with the skills necessary to take ideas from laboratory to market. The San Diego State University (SDSU) Foundation provides support for the Center for Commercialization of Advanced Technology (CCAT). The Foundation functions as a self-contained private corporation, separate from the University, yet integrated into the goals and programs the University and responsible for the accomplishment of certain University objectives. The University of Maryland's program has been supported by Kauffman Foundation, NCIIA, and from faculty research grants.

- *Endowment funding available.* As is true for entrepreneurship programs in general, Entrepreneurship programs integrated with incubation and technology transfer are attractive for endowment funding. Purdue's Innovation Realization Lab (IRL) was endowed by Lilly Endowment, Inc. to support nine IRL Fellows and nine MBA interns from the Krannert School of Management. They will receive support to study issues surrounding the commercialization of the Fellows' research. PhD students enrolled in Purdue's schools of Agriculture, Engineering, or Science are eligible for IRL Fellowships.

Purdue's program has also received private donation from the Alan and Mildred Peterson Charitable Foundation.

Integration Benchmarks

As noted above, entrepreneurship education programs that are integrated with technology transfer offices and incubation sites represent another developing trend. The chosen examples are listed in alphabetical order:

- Boston University – Medical School
- Columbia University
- Purdue University – Engineering
- San Diego State University (and University of California – Berkeley)
- Stanford University
- Tulsa University
- University of California – Berkeley
- University of Maryland
- University of Pennsylvania
- University of South Florida
- University of Texas at Austin
- Wake Forest University
- Wisconsin (partnership of multiple organizations, including universities)

Boston University – Medical School

http://www.thephotonicscenter.com

- *The Photonics Center* is an incubator where companies can develop, and commercialize Photonics technologies by accessing equipment, laboratory facilities, and technical expertise, thus leveraging the vast technical assets of the Center and Boston University to augment their company's capabilities. The Center and Beacon Photonics, a holding company that creates vertically focused venture capital development companies (VCDCs) have developed a program that focuses and accelerates the development and commercialization of advanced Photonics technologies and products by bringing together the best ideas, both from within and outside the University, and combining them with the expertise and resources of the University and the business community. Whereas traditional incubators or venture funds provide start-ups solely with space and capital, this unique program affords portfolio companies access to all of the tools necessary to accelerate their time to market.

Columbia University

http://www.stv.columbia.edu/

- *Science and Technology Ventures* (formerly Columbia Innovation Enterprise): The Science and Technology Ventures is the technology transfer function for Columbia University. It seeks to commercialize University-based technology by working with faculty members and industry and venture capital groups to start new businesses based on Columbia's intellectual property. It is also associated with an incubator through its advising of companies on availability of new incubator space in the Audubon Business and Technology Center. One program example appears below; refer to website for others.
    - *The Center for Advanced Technology (CAT).* Columbia University's CAT is a joint effort of the Department of Medical Informatics at Columbia Presbyterian Medical

Center in conjunction with the Computer Science Department (School of Engineering at Columbia) and the Columbia Genome Center. The CAT is now focused on three major applications: GeneWays, software that extracts information from research literature; GENIES, a natural language processing information extraction program; and, WeaVe, speech recognition technology for the World Wide Web. http://www.cpmc.columbia.edu/CAT/.

Purdue University – Engineering

http://www.mgmt.purdue.edu/centers/tti/

- *The Technology Transfer Initiative (TTi)* conducts research on issues industry encounters when trying to license and market new technologies and products. It also will help faculty design courses to teach entrepreneurship. TTi is a multidisciplinary program developed by Purdue's School of Management in partnership with Purdue's schools of Science, Engineering, and Agriculture. TTi's mission is to serve as a catalyst in promoting educational activities and programs on innovation and technology transfer. Four key program elements support TTi's mission:
  http://128.210.160.161/wps/portal/_pagr/109/_pa.109/152
  - *Research funding* is provided on a competitive basis to faculty interested in the innovation process, factors leading to success or failures of new ventures, issues surrounding intellectual property rights, and other areas related to the commercialization of research or technically based product ideas
  - *Competitive grants* support curriculum development for faculty interested in developing courses in support of TTi's mission.
  - The *Innovation Realization Lab* (IRL) matches MBA students from the Krannert School of Management with doctoral students from Purdue's schools of Agriculture, Science, and Engineering in teams to analyze the commercial potential of the doctoral students' research. This NSF funded program spans two years and includes required courses taken by the teams.
  - *Business consulting services* are provided to faculty groups working on new technologies and interested in exploring avenues for realizing commercial value from their research. Students and management faculty work with faculty across campus, as well as faculty in the Purdue Research Park, in assessing commercial technology potential.
- Integration with Purdue's Technology transfer office occurs through a management course. A major part of the course involved having teams of students investigate the commercial feasibility of new technology being developed at Purdue. One semester they investigated five specific projects and developed reports in which they appraised these technologies and developed preliminary strategies for commercializing them. Staff from Purdue's Office of Technology Transfer worked with the students to select projects, and in many cases, introduced them to the faculty who had developed the technologies.

San Diego State University and University of California – San Diego

http://www-rohan.sdsu.edu/dept/emc/CCAT/index.htm

- *Center for Commercialization of Advanced Technologies.* The CCAT project is a partnership between SDSU, UCSD, ORINCON Technologies Inc., the Navy's Space Warfare (SPAWAR) Systems Center San Diego, and the Department of Defense. It brings agencies together to accelerate the development and application of advanced technologies to solve real-world problems through administering a $5.2 million DOD

sponsored technology commercialization program. The CCAT program is designed to fast-track Department of Defense, industry and academic technologies into commercial and/or defense related markets. New technological ideas are identified for use in addressing an issue of national concern. Experts from the Jacobs School of Engineering at UCSD, defense contractor ORINCON Industries, and the Space and Naval Warfare Systems Center then evaluate a new technology concept to see if it has technical merits. Students and faculty from the EMC and other College of Business Administration departments oversee the market analyses to determine commercial value for the new concepts. Subject technologies may lead to new start-up ventures or be transitioned into existing companies. CCAT offers the following services at no cost for selected technologies:

- Commercial Feasibility Studies
- Prototype Development, Test & Evaluation Funding
- Research & Development Funding
- Market Analysis Studies
- Business Plan Development
- Venture Finance Connectivity
- DOD Acquisition Assistance

- University of California – San Diego – Jacobs School of Engineering, (http://www.soe.ucsd.edu/) a top-ten engineering school, is the primary link between CCAT and academia, and is a source for identifying and developing advanced technological concepts. The School solicits and promotes advanced technology R&D projects, performs technical feasibility evaluations, and provides scientific and technological support for CCAT sponsored R&D projects. UCSD Connect (http://www.connect.org/) assists in promoting the commercialization of new technologies and facilitates the start-up of new business ventures.

  - *UCSD CONNECT.* Founded in 1985 at the urging of San Diego's business community, UCSD CONNECT is widely regarded as the nation's most successful regional program linking high-technology and life science entrepreneurs with the resources they need for success: technology, money, markets, management, partners, and support services. Part of the University of California – San Diego (UCSD), CONNECT has a dual role in accelerating growth: it provides added value and delivers targeted, high-level expertise to San Diego's technology business community by teaming up with the region's most prominent industry-specific organizations and individuals, and by partnering with world-class UCSD resources, such as the School of Medicine, Jacobs School of Engineering, San Diego Super Computer Center, and Scripps and Salk Institutes.

    CONNECT's services are tailored to meet the varying needs of San Diego entrepreneurs at all stages of their business life cycles and growth. Since its inception, CONNECT has assisted more than 800 technology companies. Its programs serve as a catalyst for the development and exchange of ideas, a forum to explore new business avenues and partnerships, and an opportunity to network with peers.

Stanford University

http://mdn.stanford.edu/plsql/about

- *The Biodesign Network (BDN).* BDN is a continuation and expansion of the *Medical Device Network (MDN),* which was founded in 1997. It explicitly focuses on technology transfer, providing education, advocacy and mentoring to students and faculty who wish to bring their innovations forward through the university to be developed into commercialized healthcare products. BDN also provides connections to the professional

communities that specialize in biomedical technology, such as investors (angel, venture capital and institutional), medical technology equipment manufacturers, and attorneys who specialize in intellectual property and new venture formation. With a member base of nearly 900 academic and industry participants, the Biodesign Network website provides a mechanism for networking among individuals who work in the biomedical technology industry, particularly medical devices, diagnostics, tissue engineering and related areas. The goals of the network are:

- To encourage and facilitate invention, patenting and early-stage development of medical devices
- To develop Stanford as an effective regional resource for research and education in the area of biomedical technology design and development

MDN sponsors a number of conferences for the device community and helps organize a series of courses in medical device design and development. In the area of technology innovation MDN has developed a successful "Invention Challenge" methodology at Stanford and conducts a mentorship program for young inventors. MDN works with the Office of Technology Licensing to develop effective evaluation and licensing strategies and has established important connections with the local financial and biomedical technology industries.

- The Stanford University Program in Biodesign http://biodesign.stanford.edu is a unique academic program focused on the invention and implementation of new health technologies through interdisciplinary research and education at the emerging frontiers of engineering and the biomedical sciences. The program is organized administratively into four major units, (technology transfer/network, research, education and ethics & policy), each with a director and leadership group.

Tulsa University

http://www.utulsa.edu/fyi/index.pl?group=2&bullet=2

- *Tulsa University Innovation Institute (TUI2) Certificate Program in Innovation and Product Development.* The TU Innovation Institute (TUI2) provides a unique interdisciplinary forum where **engineering, business, arts and sciences, and law** students come together to study and develop comprehensive plans for marketable technology-based products. Students also collaborate with the Oklahoma Technology Commercialization Center (OTCC) to analyze actual business plans submitted by aspiring entrepreneurs.

University of California – Berkeley

http://www.haas.berkeley.edu/advantage/entrep.htm

- *Berkeley Business Incubator.* In 1997, supporters of the Lester Center established a business incubator for start-ups created by current Haas School students and recent graduates. Located near the business school, the incubator is designed to provide office space and advanced telecommunications capabilities to promising new ventures that have progressed beyond initial planning. Proximity to the school also allows enhanced access to the Lester Center's resources, including the networks of venture capitalists, attorneys, accountants, and consultants that are so important to the Bay Area's entrepreneurial process. The incubator is funded with donations from advisers and friends of the Lester Center.

University of Maryland

http://www.hinmanceos.umd.edu/

- **Hinman Campus Entrepreneurship Opportunities (CEOs) Program.** The nation's first living-learning entrepreneurship initiative brings students together from diverse majors to learn how to start their own businesses. A specialized, high-technology "e-Dorm," seminars and workshops from venture capitalists and successful businesspersons, industry-student mentoring, and unique entrepreneurship education courses give students a stimulating and supportive environment in which to dream and realize their ideas. An incubator like atmosphere is created by facilities for meetings, office equipment, computers, staff support, and a small seed fund. The program culminates in a business plan for each new student venture and assistance to obtain financing. Offered to undergraduate students who have demonstrated interest and potential strength in entrepreneurial ventures. Students from **all majors** can apply, and all aspects of diversity are sought. The Program promotes the development of student teams that have the goal of pursuing an entrepreneurial venture. Each student team is assisted in the development of a business idea from conception, through design and ultimately to the formation of a company. This process takes place over a period of up to three years while the students are undergraduates, culminating with the students being prepared to pursue a successful entrepreneurial venture upon graduation.

- Students have access to the resources of the Clark School's Engineering Research Center (ERC), which offers an internationally recognized incubator for technology based start-ups (TAP), as well as funding opportunities for joint research and development of market-driven products and processes (MIPS). http://www.erc.umd.edu/TAP/

University of Pennsylvania

http://www.wharton.upenn.edu/

- **Wharton Venture Initiation Program (VIP).** (http://whartonsbdc.wharton.upenn.edu/vip.htm) The VIP is a business incubator, managed and operated by the **Wharton Small Business Development Center (WSBDC)** (http://whartonsbdc.wharton.upenn.edu/), for companies that are owned and operated by students and recent graduates of the University of Pennsylvania. The VIP provides client companies with the entrepreneurial management education, support, and physical facilities that are essential for starting a new business. VIP services are given without cost or loss of equity to the participating student teams. The aim is to foster a series of Penn student businesses that are honed for success: well developed, polished and professionally nurtured, or in other words, "Venture Ready."

University of South Florida

http://www.entrepreneurship.usf.edu/

- **The Center for Entrepreneurship** is a multi-disciplinary, campus-wide center focusing on entrepreneurial education, training and research. The Center operates a full service technology incubator, the **USF Tampa Bay Technology Accelerator** (http://www.research.usf.edu/incubator/incubator.htm) that serves to accelerate the growth of technology-based businesses. The Accelerator operates as a "living, learning laboratory" in which USF faculty and community entrepreneur leaders grow new ventures leveraging the research discoveries at USF. USF's students work directly with both faculty and entrepreneurs to give a deeper understanding of how to create, grow and successfully launch new technology ventures.

University of Texas at Austin

http://mba.mccombs.utexas.edu/students/academics/special/specmgent.asp

- **Austin Technology Incubator (ATI).** (http://ati.ic2.org/) ATI supports promising high growth companies in a variety of technology-based industries, through a targeted services package which includes strategic advice, access to financing, marketing & P.R. support, benefits program, mentoring, and turn-key infrastructure. ATI is supported by the University of Texas, the City of Austin, and the Austin community, and works with a variety of investors, a "know-how network" of professional service providers, outside industry experts, and others, for the benefit of its member companies.

Wake Forest University

http://www.mba.wfu.edu/ace/

- **Medical Technology Transfer.** This program includes summer entrepreneurial internships, Management Consulting Practicum projects, and special initiatives such as FastTrac Tech (a 12-week program for individuals who want to launch new technology-based ventures). The WFU Babcock Graduate School of Management's **Angell Center for Entrepreneurship** runs the program. The Center has an excellent relationship with the WFU Office of Technology Asset Management; together they continue to intensify their contributions to the commercialization of Wake Forest inventions.

- **Babcock Demon Incubator (BDI).** (http://www.mba.wfu.edu/incubator/) Operating under the Angell Center for Entrepreneurship, the incubator's mission is to foster entrepreneurial education at Wake Forest and an entrepreneurial spirit in the Triad area of North Carolina by providing personalized services and relationships to growth-oriented, early stage ventures. The incubator offers office space and Internet access. It will house three to five start-up businesses, with tenants admitted on a rolling basis throughout the year. Each business that enters the incubator will have approximately 12 months to grow and find a permanent location. The goal for the incubator is to launch businesses that have the potential to create significant economic impact in the Triad through jobs and business investment. Among the businesses to be housed in the incubator will be winners of the Triad Entrepreneurial Initiative's annual business plan competition. In addition to playing an instrumental role in helping launch new ventures, the BDI serves as a living laboratory for students and faculty.

Wisconsin (Partnership of multiple organizations, including universities)

http://www.thecati.com/

- **The Center for Advanced Technology and Innovation (CATI).** CATI, a separate 501(c)(3) corporation, was formed to promote business development, workforce development, and technology innovation in southeast Wisconsin. Located in Racine County, CATI represents a partnership among local and regional educational institutions, regional business development organizations, local and regional governments, and private industry. Partners include: Carthage College, Gateway Technical College, the University of Wisconsin – Parkside, the Racine and Burlington school districts, and regional economic development organizations (Racine County Economic Development Corporation, RAMAC, Workforce Development Center). This strategic partnership allows CATI to offer all the necessary skills, capabilities and resources to develop new products, services, and businesses, while simultaneously creating the future technology workforce. It has three main components:

    - *Incubation.* CATI operates an incubation facility where new and developing firms can develop and market new technology products and services.

- *Technology Transfer.* In the traditional sense, technology transfer has involved the commercialization of university-related research. CATI has a unique partnership with the **University of Wisconsin – Parkside**, **Carthage College** and the **TechStar Initiative** to create technology transfer opportunities in Racine County. CATI also views technology transfer as the commercialization of underutilized intellectual property from existing companies, as well as the development of new product/services through the application of upstream technologies.

- *Education.* The CATI educational program is integrated with local colleges, universities and school districts to provide project-based learning opportunities to students from high schools, colleges, entrepreneurs and a wide range of audiences, including under- and unemployed individuals.

METRICS OF SUCCESS

Universities define success with their entrepreneurial education programs in myriad ways, reflecting their many stakeholders. The list of metrics described below reflects the most common. Some of these metrics are more easily measured than others, and should be viewed as an overview and reference from which a program could design its own metrics for Entrepreneurship Program success.

Common Approaches to Metrics

Student Related Learning Benefits

- Academically rigorous
  - Enhances critical thinking, analysis
- Multidisciplinary and integrative
  - Draws from multiple business school disciplines: strategy, management, marketing, and finance (venture capital) and associated technology disciplines
  - Perspectives of all disciplines must be balanced and integrated for effective decision making and planning
- Practical, applied experience
  - Students improve ability to make valuable contributions and to decide on career goals
- Career outcomes
  - Students create own start-ups
  - Students become employed in start-ups
  - Students become involved in venture capital, boards of start-ups
  - Career success in larger company settings
    - Higher salaries
    - Higher impact on new product development
  - Higher career satisfaction
  - Higher employment in high tech industries

University-Related Metrics

- Enhance reputation for contemporary, cutting edge education
  - Student demand for and satisfaction with entrepreneurship courses
  - Rankings by *Business Week* and others creates university/program visibility
  - Student application rates
- Involvement in academic entrepreneurial community
  - Faculty and student participation in professional organizations and competitions
  - Publishing newsletters and sponsoring journals
  - Creating and distributing new teaching materials
- Technology commercialization
  - Number of start-ups launched with business planning support from entrepreneurship students
  - Technology and market assessments leading to appropriate decisions on other commercialization
- Financial returns to the university through enhanced commercialization – licensing, royalty, and equity income
- Enhanced external funding
  - Alumni and other donor donations and relationship building
    - Tangible opportunity for impact with donation
    - Involvement in Entrepreneurship Center Board
    - Draws entrepreneurial alumni
  - Federal and state funding program support
    - NSF, Sloan, and others
- Cross-campus integration
  - Multidisciplinary basis for entrepreneurship is strong foundation of integrative program development
- Retention of key faculty
  - Opportunities for career growth and financial success within university context
  - Faculty see fruition of their research efforts to commercialization and application
- Faculty publication rates in entrepreneurship
  - Entrepreneurship programs provide access to entrepreneurial research opportunities
- Develop ties with local community
  - Community-based professionals involved in entrepreneurship programs
  - Ties with local economic development organizations
  - Public symposia
  - Student consulting projects
  - High school educational programs

Economic Development Metrics

- Local economic activity related to university-based technologies and from entrepreneurial graduates is high, and is often retained in the state of origin
    - Development of technology industries
    - Number of new companies
    - Number of new jobs
    - Enhanced tax base
- National and global economic activity
    - Entrepreneurship has contributed to U.S. dominance in such industries as biotechnology and pharmaceuticals
- Entrepreneurship graduates launch or are involved in companies with much higher sales and employment growth
- Attract and retain resource providers
    - Entrepreneurial and highly educated technology professionals
    - Venture capital
    - Related service providers
        - Intellectual Property and Business lawyers
        - Bankers
        - Accountants

Links for Metrics

The following links contain materials with useful insight into and discussion on entrepreneurship education metrics.

Building Entrepreneurship Programs and Centers

- How to Build an Entrepreneurship Center
  http://stvp.stanford.edu/presentations/EshipCenterGlobal.pdf
- Building Successful Entrepreneurship Education Programs for Engineers and Scientists
  http://stvp.stanford.edu/presentations/EshipCenterGlobal.pdf

Impact of Entrepreneurship Education

- Entrepreneurship Education: Opportunity in Search of Curriculum by Marilyn L. Kourilsky
  http://www.entreworld.org/Bookstore/Product.cfm?DID=6&Product_ID=26&CATID=22
  Here is the rationale for the nation's schools to include entrepreneurship education.
- Impact of Entrepreneurship Education by Alberta Charney, Gary D. Libecap
  http://www.entreworld.org/Bookstore/Product.cfm?DID=6&Product_ID=62&CATID=22
  This study is the first of its kind to analyze the impact of entrepreneurship education,

which has grown dramatically in the U.S. over the past 15 years.

- Vesper K.H., Gartner, W.B. (1997) "Measuring Progress in Entrepreneurship Education," Journal of Business Venturing, 12(5): 403-421.

- Consortium for Entrepreneurship Education. For teachers, instructors, program developers and others who help students of all ages find their own entrepreneurial opportunities. http://www.entre-ed.org/

    - Entrepreneurship Education. This section of the Consortium for Entrepreneurship Education's website provides a number of items to explain the need for entrepreneurship education in a variety of educational settings. http://www.entre-ed.org/_entre/index.htm

Economic Development/Public Policy

- Entrepreneurship: Economic Impact and Public Policy Implications by Michie P. Slaughter
http://www.entreworld.org/Bookstore/Product.cfm?DID=6&Product_ID=21&CATID=22
Details the role played by entrepreneurship in an era of downsizing and restructuring.

- Entrepreneurship and Community Development by Raymond W. Smilor, Ph.D.
http://www.entreworld.org/Bookstore/Product.cfm?DID=6&Product_ID=23&CATID=22
Cooperation between entrepreneurs and leaders of economic development can build healthier communities.

- *Southern Compass* documents economic development news in the South. It is compiled from reports from the Southern Technology Council, the Southern Global Strategies Council, the Council on the Southern Economy, the Council on a New Economy Workforce, the Council on the Southern Community, and Southern Growth staff.
http://www.southern.org/compass/index.asp

- *Understanding Entrepreneurship Promotion as an Economic Development Strategy: A Three-State Survey,* Report by Erik R. Pages and Kenneth Poole, January 2003. A available at the Public Forum Institute's National Dialogue on Entrepreneurship site
http://www.publicforuminstitute.org/nde/materials/3statesurvey.pdf

- *Entrepreneurial Arkansas: Connecting the Dots*, by Brian Dabson and Kent Marcoux, February 2003, lays out a new vision for promoting entrepreneurial development in Arkansas. The study includes a number of recommendations, including the introduction of entrepreneurship education curriculum in all primary and secondary schools across the state. Such training should also be a credit option in the state's colleges and universities.
http://www.wrockefellerfoundation.org/pdfs/ConnectTheDots.pdf

RESOURCES

Funding Sources for Entrepreneurship Program Development

The following funding sources are intended to be an illustrative, yet not exhaustive list of entrepreneurship funding opportunities. Not all sources have been independently verified as having given specifically to entrepreneurship initiatives, yet their missions could encompass such giving.

For a brief handbook on seeking external resources for research based upon a compilation of original and existing information on funding opportunities and crafting a grant proposal. While the focus is on research grants, materials relevant to program grants are also included. Grants and Grant Proposal-Writing, 2nd Edition (expanded and revised, 1998), John O'del, Ph.D., Academy of Management Entrepreneurship Division International Committee. http://www.slu.edu/eweb/grants.htm#Foundations

Foundations

Argosy Foundation (formerly The Abele Family Charitable Trust) was established in 1993 in Massachusetts. The foundation's mission is to support people and programs that make our society a better place to live. The method is to support creative, entrepreneurial approaches that help people to help themselves. These programs should have the potential to become self-sustaining whenever possible, to build teams and communities, to be replicated, and to motivate and inspire others to contribute in their own ways. Argosy is built on the wealth of John Abele, founder of Boston Scientific Corp., a leading supplier of medical equipment. The foundation has a value of about $450 million, indicating that it will give away about $22.5 million a year (no website). Contact:

c/o The Philanthropic Initiative
77 Franklin St., 9th Fl.
Boston, MA 02110
Contact: Kristen Whelan

N.B.: according to this website the foundations had $28,832,154 in total assets and granted $222,047 in the fiscal year ending 11/30/2002; contact information is c/o Lawrence Silverstein, Bingham Dana LLP, Boston, MA 02110, phone: 617-720-5800 although the TPI site also cites Argosy as an active client as of 2002

http://www.consumerfreedom.com/activistcash/donor_detail.cfm?DONOR_ID=53

Delphi Foundation is an independent charitable foundation established in 1999 (http://www.delphi.com/corporate/community/foundation/). The targeted areas of focus for the Delphi Foundation are educational opportunities and support systems aimed at helping young people reach their full potential. Special – though not exclusive – consideration is given to educational programs focused on science and technology. About half of the contributions are allocated to higher education programs in conjunction with Delphi's Education Relations activity and half are dedicated to K-12-related initiatives. Primary consideration is given to requests that:

- Link to Delphi's business vision and mission
- Are focused on science and technology educational programs
- Demonstrate an ability to measure effectiveness
- Are customer-driven
- Are global programs that encourage international studies
- Clearly articulate the benefits to Delphi and its local communities

Ernst & Young Foundation was formed in 1937 to provide effective and meaningful philanthropic support to institutions of higher education, primarily in the areas of accounting, information systems, tax, and general business practice with education for minorities as an emphasis. Since then, our firm and the E&Y Foundation have gifted more than $100 million to charitable organizations throughout the United States. Support also for mathematics, educational research, an employee matching gift program, lectureships, and fellowships to faculty. http://www.ey.com/GLOBAL/content.nsf/US/About_Ernst_Young_-_Foundation

Herrick Foundation is an independent group, incorporated in 1949 in Michigan, which supports building, renovation, equipment purchases and program development. The foundation usually awards grants of between $5,000 and $50,000 (no website).

Kauffman Foundation (http://www.emkf.org/) has focused on entrepreneurial success at all levels since 1992 -- from elementary students to college students, from aspiring entrepreneurs to high-growth entrepreneurs. The Foundation works to accelerate entrepreneurship in America by reaching individuals at all ages through the delivery of entrepreneurship education and development, and the promotion of an entrepreneurial environment. Educational efforts include broad-based awareness as well as specific training. The Foundation works with partners to customize learning opportunities, content and distribution channels to best serve individual needs, which vary based on age and stage of business growth. Similarly, the Kauffman Foundation supports content and initiatives to continually improve the environment within which entrepreneurs operate. This includes research that defines what it takes to be a successful entrepreneur; best practices for supporting entrepreneurship and entrepreneurship's role in the country's economy; a pro-entrepreneurship policy climate; and support of organizations and institutions that help entrepreneurs. The Foundation focuses its operations and grantmaking on two areas: entrepreneurship and education. Their entrepreneurship web site (http://www.entreworld.org) is devoted to the entrepreneurship topic and provides more information about programs and resources in this arena.

- **Kauffman Collegiate Entrepreneurship Network.** In January 2003, the Kauffman Foundation announced grants to 52 colleges and universities totaling more than $2.3 million for the Kauffman Collegiate Entrepreneurship Network (KCEN). The KCEN is a new initiative aimed at improving the quality of entrepreneurship teaching research and service in U.S. colleges and universities The programs were selected from more than 300 proposals, which were reviewed by judging teams comprised of Foundation staff and entrepreneurship experts and educators. Each proposal described how the institution planned to develop, expand or enhance entrepreneurship education in the areas of teaching, research or service. Proposals were rated on a variety of factors, including the number of students reached, the variety of disciplines involved and the focus on experiential learning. http://www.kauffmannetwork.org/

- **Kauffman Entrepreneur Internship Program (KEIP).** Established in 1996, the program offers two KEIPs: for-profit and not-for-profit. Colleges, universities and entrepreneurship organizations nationwide participate in this program by applying through an RFP process for a grant to administer the program. The Kauffman Foundation makes the final decision on the grant recipients, awarding up to $100,000 each for for-profit internships and up to $25,000 each for not-for-profit internships. Additionally, grant recipients can apply through an RFP process for the KEIP Support Grant to help sustain their programs after the first year of operation. The Kauffman Foundation has provided grants totaling more than $10 million to 171 academic and support organizations for the implementation of the for-profit or not-for-profit internship program. http://www.emkf.org/pages/186.cfm

- **Kauffman Dissertation Fellowship Program** (http://kesi.emkf.org)The Kauffman Center awards approximately 10 "Emerging Scholar" grants of $15,000 each to doctoral students for the support of scholarly entrepreneurship research. A secondary goal is for the research results to be translated into knowledge with immediate application for policymakers, educators, service providers and entrepreneurs.

- **Kauffman Venture Capital Fellowship Program** (http://www.kauffmanfellows.org/kfp/index.asp?pg=index). The goals of the fellowship are to groom the next generation of seed and start-up venture capitalists and to cultivate future leaders of high-potential companies. Those who become Fellows will begin their fellowships in summer 2003. The fellowships will last for 18 months and will provide an annual stipend of $110,000. This program is part of the **Kauffman Center for Venture Education** (http://www.kauffmanfellows.org/cve/index.asp).

- **Adult Entrepreneurship Programs.** (http://www.emkf.org/pages/7.cfm) The Kauffman Foundation invests in programs, partnerships and initiatives that provide both aspiring and already-established entrepreneurs with knowledge, resources and tools to help them start and grow their businesses. These efforts include hands-on education and training programs, online resources, peer-to-peer learning, a focus on under-represented communities, and recognizing and celebrating entrepreneurship.

    - **Entrepreneur Of The Year Institute®** recognizes entrepreneurs who have led the way in innovation and achievement (http://www.emkf.org/pages/5.cfm)
    - **FastTrac™** is a practical, hands-on business development program designed to help entrepreneurs hone the skills needed to create, manage and grow a successful business (http://www.emkf.org/pages/6.cfm)
    - **Kauffman Business EKG** is a free web-based financial benchmarking service designed to help entrepreneurs assess their companies' financial vital signs (http://www.emkf.org/pages/16.cfm)
    - **Kauffman Center Book Series on Managing Growth** includes three books, and is designed to enable entrepreneurs to manage and accelerate the growth of their companies (http://www.entreworld.org/ManagingGrowth)
    - **Kauffman Foundation's EntreWorld.org**, an award-winning web site is a one-stop resource for entrepreneurs trying to start and grow their businesses (http://www.emkf.org/pages/9.cfm)
    - **Kauffman Signature Series** are informative and interactive learning programs designed especially for growth entrepreneurs (http://www.emkf.org/pages/234.cfm)
    - **National Supporter of Entrepreneurship Award**, given by the Kauffman Foundation at the Ernst & Young Entrepreneur of the Year ceremonies, honors individuals who have made an outstanding contribution to entrepreneurship (http://www.emkf.org/pages/339.cfm)

Kalamazoo Community Foundation is dedicated to enhancing the spirit of community and quality of life in the greater Kalamazoo area through its stewardship of permanently endowed funds. Founded in 1925 on the simple idea that it is our responsibility to look after one another, the Foundation is an organization nurtured and sustained by the individuals and families of our community. Because of their generosity and commitment to charitable work, the foundation has awarded more than $195 million in grants over the years. http://www.kalfound.org/

W.K. Kellogg Foundation is a non-profit organization whose mission is to apply knowledge to solve the problems of people. Its founder W.K. Kellogg, the cereal industry pioneer, established the Foundation in 1930. Since its beginning, the Foundation has continuously focused on building the capacity of individuals, communities, and institutions to solve their own problems. During the past fiscal year, September 1, 2001, through August 31, 2002, the Foundation made grant expenditures of $223 million. "Youth and Education" is one of the major categories of funding focus. It has been a Platinum sponsor for the Great Lakes Entrepreneurship Quest (GLEQ) competition since the inaugural launch. To be eligible for a grant, the organization or institution, as well as the purpose of the proposed project, must qualify under regulations of the United States Internal Revenue Service as a 501c3 organization.
http://www.wkkf.org/Grants/Default.aspx

Lemelson Foundation uses its resources to inspire, encourage and recognize inventors, innovators and entrepreneurs, with a growing emphasis on those who harness invention for sustainable development where the needs are greatest. This purpose is primarily accomplished through support of college and university programs intended to motivate and prepare young people to create and develop new technologies, and to increase public awareness of the critical role of invention, innovation, and entrepreneurship in sustaining and strengthening America's economic vitality and international competitiveness. It has given more than $70 million to programs related to invention in the U.S. Through initiatives in developing countries under its recently launched International Program, The Foundation will support grassroots innovators, as well as foster and apply innovative and entrepreneurial breakthroughs that serve people and the environment. The Lemelson Foundation makes grants only to pre-selected charitable and educational organizations and does not accept unsolicited requests for funds. Additionally, The Foundation does not provide funding for protection or commercialization of intellectual property. http://www.lemelson.org/

MacArthur Foundation (The John D. and Catherine T. MacArthur Foundation) is a private, independent grant-making institution dedicated to helping groups and individuals foster lasting improvement in the human condition. The Foundation seeks the development of healthy individuals and effective communities; peace within and among nations; responsible choices about human reproduction; and a global ecosystem capable of supporting healthy human societies. The Foundation pursues this mission by supporting research, policy development, dissemination, education and training, and practice. http://macfound.org/

National Collegiate Inventors and Innovators Alliance (NCIIA), an initiative of the Lemelson Foundation, is interested in proposals for courses and projects that further the concept of E-Teams – groups of students, faculty, and professionals who join together to pursue the development of an idea, product, or invention, or to solve a problem in a way that has the promise of developing an enterprise that will generate jobs and social benefits. Through January of 2003, NCIIA has awarded over $2.7 million, approximately 50 grants ranging from $2,000 to $50,000. Two types of grants are offered: 1) E-Team Course and 2) Program Development Grants. Only NCIIA member colleges and universities may apply. The most recent proposal deadline was May 15, 2003. http://www.nciia.org/grants/index.html

Price Institute for Entrepreneurial Studies (http://www.pricefoundation.org/priceinstitute.htm) is a separate, private, operating foundation established by Mr. Harold Price in 1979 and funded through grants from the Louis and Harold Price Foundation. The mission of the Institute is twofold:

- To further the understanding of the entrepreneurial process
- To stimulate MBA Programs and curricula development to encourage and support students with entrepreneurial aspirations

The Louis and Harold Price Foundation is governed by a Board of Trustees that sets policy and is responsible for the review and approval of grants. Grant selection is based on the following guidelines (http://www.pricefoundation.org/grantmaking-policy.htm):

- Grants are made generally to organizations that are tax-exempt under Internal Revenue Code Section 501(c)(3)
- Funding has traditionally been for innovative and creative programs primarily in the areas of education, health, and human social services. Of particular interest is the area of entrepreneurial studies conducted at institutes of higher education, which is funded through the Price Institute for Entrepreneurial Studies

- The Foundation responds more favorably to grant proposals coming from the States of New York, California and Colorado

Wege Foundation, based in Grand Rapids, was established in 1967 by Peter Wege, son of the Steelcase founder. The mission of the foundation is "supporting organizations and people who create waves of enlightenment." It supports the environment, education and community development (no website).

Federal Agencies and Programs

Economic Development Administration (EDA) is making available $335 million in grants to support state, regional and community efforts to create wealth and minimize poverty in areas with substantial economic distress by promoting a favorable business environment to attract private capital investment. Potential applicants must submit a pre-application proposal to the appropriate EDA representative for the area or regional office. For the detailed announcement visit http://frwebgate.access.gpo.gov/cgiin/getdoc.cgi?dbname=2002_register&docid=02-4882-filed. For application information visit http://www.eda.gov/InvestmentsGrants/Investments.xml.

LEADERS (Linking Educators and Developing Entrepreneurs for Reaching Success): House Bill, introduced June 2003, to fund university-related incubators at $20 million per year for 3 years, to start 2004. Each facility can get $750,000-$1.5 million and up to $150,000 per year for operational funding. Curriculum development could be included. For official updates on bill's progress, visit http://thomas.loc.gov and search for H.R. 2314 IH. For House contact information, visit http://www.house.gov; for Senate contact information, visit http://www.senate.gov.

National Science Foundation (NSF) supports many programs for educators at all levels, in both formal and informal educational settings. Special programs include those supporting junior faculty members; research on learning and intelligent systems; curriculum and instructional materials development; awards for excellence in science and mathematics teaching, and more. More information on these and other programs can be found in the home page of the Directorate for Education and Human Resources (http://www.ehr.nsf.gov/). The website for educators: http://www.nsf.gov/home/faculty/start.htm. (can't reproduce search)

- *The Integrative Graduate Education and Research Traineeship (IGERT) Program* was initiated in 1997, now comprises approximately 100 award sites, and is continuing into its sixth annual competition. The IGERT program has been developed to meet the challenges of educating U.S. Ph.D. scientists, engineers, and educators with the interdisciplinary backgrounds, deep knowledge in chosen disciplines, and technical, professional, and personal skills to become in their own careers the leaders and creative agents for change. The program is intended to catalyze a cultural change in graduate education, for students, faculty, and institutions, by establishing innovative new models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries. It is also intended to facilitate greater diversity in student participation and preparation, and to contribute to the development of a diverse, globally engaged science and engineering workforce. IGERT is an NSF-wide endeavor involving the Directorates for Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), Social, Behavioral, and Economic Sciences (SBE), the Office of Polar Programs (OPP), and the Office of International Science and Engineering (INT). http://www.nsf.gov/home/crssprgm/igert/intro.htm

- *Partnership for Innovation (PFI)* (http://www.nsf.gov/pubs/2003/nsf03521/nsf03521.html). The goals of the Partnerships for Innovation Program are to: 1) stimulate the transformation of knowledge created by the national research and education enterprise into innovations that

create new wealth, build strong local, regional and national economies and improve the national well-being; 2) broaden the participation of all types of academic institutions and all citizens in NSF activities to more fully meet the broad workforce needs of the national innovation enterprise; and 3) catalyze or enhance enabling infrastructure necessary to foster and sustain innovation in the long-term. To develop a set of ideas for pursuing these goals, this competition will support 15-25 promising partnerships among academe, state/local/federal government and the private sector that will explore new approaches to support and sustain innovation.

Sloan Foundation Professional Science Master's Degrees program goal is to create a new type of master's degree in the sciences that equips people for work outside academia. They seek to spur a significant movement in this direction through the support of exemplary efforts at selected US universities. Their focus is on Professional Science Master's degrees, heavily oriented toward coursework, requiring a full-time student two years to obtain. Foundation grants will support Professional Science Master's degrees that integrate study in the natural sciences and mathematics with knowledge and training in management, law, or other professional domains. http://www.sloan.org/programs/edu_careers.shtml

United States Department of Agriculture (USDA)

- *Incubators Eligible for Rural Utilities Funding. Organization: Rural Utilities Service (RUS), (USDA).* Deadline: Ongoing. Activities: Under the Rural Economic Development Loan program, local telephone and electric companies that are involved with the RUS make available interest-free loans for rural economic development projects, including incubator projects, feasibility studies and other expenses. Contact your local USDA Rural Development office to find out if RUS services your local utilities and if they participate in the program (an index is available at http://www.rurdev.usda.gov/recd_map.html). Apply through participating utilities and encourage nonparticipating utilities to join the program. http://www.rurdev.usda.gov/rbs/busp/bprogs.htm

- *Grants Fund Rural Incubators. Organization: United States Department of Agriculture (USDA).* The USDA makes available Rural Business Enterprise Grants on a state-by-state basis to finance and facilitate the development of small and emerging private business enterprises in rural areas, including purchasing land and constructing buildings. Deadline: Ongoing. Eligibility: Public bodies, private non-profits and federally recognized Indian tribal groups. Info: Contact your state or local area USDA Rural Development office through the index at http://www.rurdev.usda.gov/recd_map.html.

Corporate Donors

Amway has worked to provide better opportunities for people through active support of various community projects. In 1999 alone, Amway provided financial and human support to more than 200 different community programs in the areas of human services, education, environment, arts and culture, and sports. In addition to these corporate initiatives, thousands of Amway distributors have generously given time and money to benefit countless community programs over the years. http://www.amway.com/OurStory/o-comm.asp

Pfizer is deeply committed to strengthening and enhancing the quality of life in the communities where its employees live and work. They share their most valuable resources and expertise with those in need by donating medicine and training to improve access to healthcare around the world, introducing teachers and students to new ideas through science education programs and giving time as community volunteers. Together with leading non-profit organizations and NGOs, community health centers, governments, the UN and the World Health Organization, they are building partnerships for a healthier world. Pfizer supports a range of organizations that address urgent community needs, seek long-term solutions to community issues & strengthen the cultural vitality of diverse communities. http://www.pfizer.com/subsites/philanthropy/index.html

Non-Profits

Invent Now Is a non-profit organization with the following mission: to celebrate and foster the spirit and practice of invention — the innate human impulse that drives social and economic progress.

- *The Collegiate Inventors Competition (CIC).* The CIC is a national competition that recognizes and rewards innovations, discoveries and research by college and university students and their faculty advisors. The program was introduced in May 1990 and coincides with the annual National Inventors Hall of Fame induction ceremony. The National Inventors Hall of Fame Collegiate Inventors Competition encourages students actively pursuing invention. Students frequently come from science, engineering, mathematics and technology studies but creative invention can emerge from any course of study. The competition also recognizes the working relationship between a student and his or her advisor. Prizes are one $50,000 and two $25,000 prizes for graduate student winners, and their advisors receive an honorarium of $10,000 or$5,000. http://www.invent.org/collegiate/index.html

- *The National Inventors Hall of Fame™* honors the women and men responsible for the great technological advances that make human, social and economic progress possible.

Entrepreneurship Professional Organizations

Academic Business Entrepreneurship

Academy of Management (AOM) is a leading professional association for scholars dedicated to creating and disseminating knowledge about management and organizations. Founded in 1936 by two professors, the Academy of Management is the oldest and largest scholarly management association in the world. Today, the Academy is the professional home for 12,801 members from 87 nations. http://www.aomonline.org/

- *Entrepreneurship Division*. The domain of this division is the creation and management of new businesses, small businesses and family firms, as well as the characteristics and special problems of entrepreneurs. The Division's major topic areas include:
    - New venture ideas and strategies
    - Ecological influences on venture creation and demise
    - The acquisition and management of venture capital and venture teams
    - Self-employment
    - The owner-manager
    - Management succession
    - Corporate venturing
    - Relationship between entrepreneurship and economic development
    - http://www.usfca.edu/alev/aom/EntprDiv.htm

For additional organizations for Entrepreneurship faculty researchers, see:
http://eweb.slu.edu/proforgs2.htm

Ann Arbor IT Zone seeks to capitalize on Ann Arbor and Washtenaw County's historic and growing role in the information technology industry. The county currently has over 500 IT companies, and is viewed as the hub of small creative IT firms for the state of Michigan. The industry currently employs over 9000 individuals, making it comparable in employment to the automotive industry, health care and education in the county's economy.
http://www.annarboritzone.org/

- *Entrepreneur Boot Camp* compresses the usual three-month learning curve to develop a great business concept into three *days* of learning and doing.
  http://www.annarboritzone.org/bootcamp.asp

Babson College

http://www2.babson.edu/babson/Babsoneshipp.nsf/Public/pricebabson

- *The PriceBabson College Fellows Programs – Symposium for Entrepreneurship Educators (SEE), REFLECT,* and *PriceBabson@Berkeley*. Provide entrepreneurship education training programs that ensure the practical and intellectual collision between the academic and business worlds. Through our programs, we are committed to helping colleges and universities develop creative and innovative entrepreneurship curricula, to increasing teaching effectiveness, and to developing the teaching skills of entrepreneurs who are interested in engaging in full- or part-time teaching or another active role on campus. To date, approximately 800 entrepreneurship educators and entrepreneurs from over 265 colleges and universities in the US and 28 foreign countries (and all Continents), have attended SEE.

- *LLEEP* is a collaborative partnership of Babson's Arthur M. Blank Center for Entrepreneurship with leading foundations and academic institutions, all of which share a

vision and a commitment to enhance entrepreneurship education and scholarship in America. The partnership aims to foster quality, innovation, and relevance in the teaching and research of entrepreneurship and to provide lifelong learning for entrepreneurship educators, both practitioners and academics. The LLEEP clinics complement the flagship "SEE" programs through a series of practitioner-driven workshops that provide a sharper focus on improved teaching and scholarship. These clinics address in greater depth than is possible at SEE the specific skills, know-how, and competencies essential for entrepreneurship education professionals. Each clinic offers a series of hands-on, drill-down workshops taught by master teachers. Key stakeholders include: Price Institute for Entrepreneurial Studies; the Ewing Marion Kauffman Foundation; Arthur M. Blank Center for Entrepreneurship at Babson College; Deming Center for Entrepreneurship at the University of Colorado, Boulder; Stanford Technology Ventures Program at Stanford University; Page Center for Entrepreneurship at Miami University, Ohio; Haas School of Business at University of California – Berkeley; and Severino Center at Rensselaer Polytechnic Institute.

Collegiate Entrepreneur's Organization (CEO) is one of the fastest growing student organizations. Its vision is to be the premier global entrepreneurship network serving more than 500 colleges and universities. Its mission is to inform, support, and inspire college students to be entrepreneurial and to seek opportunity through enterprise creation. Conferences are held on a variety of entrepreneurship education topics. http://www.c-e-o.org/

Consortium for Entrepreneurship Education Is for teachers, instructors, program developers and others who help students of all ages find their own entrepreneurial opportunities. http://www.entre-ed.org/

- Provides a number of items to explain the need for entrepreneurship education in a variety of educational settings (http://www.entre-ed.org/_entre/index.htm)
- Entrepreneurship Education Materials (http://www.entre-ed.org/_teach/index.htm)
- A Guide to Resources and Models for Entrepreneurship Education (http://www.entre-ed.org/_arc/home1.htm)

Council for Entrepreneurial Development – North Carolina (CED) was founded in 1984 to stimulate the creation and growth of high impact companies in the greater Research Triangle area. CED achieves its *mission* (http://www.cednc.org/about/mission.html) by providing programs and services in four major areas:

- *Education* (http://www.cednc.org/member/services.html#Education)
- *Capital formation* (http://www.cednc.org/member/services.html#Capital)
- *Mentoring* (http://www.cednc.org/member/services.html#Mentor)
- *Communications* (http://www.cednc.org/member/services.html#Comm).

Through these efforts, CED provides entrepreneurs with the knowledge and skills that ensure their success and at the same time heightens awareness of the contribution that entrepreneurial companies make to our communities and our economy. http://www.cednc.org/about/index.html CED provides a wide variety of formal and informal educational opportunities for entrepreneurs. Entrepreneurs in the Research Triangle Park area can also take advantage of CED's expanding list of publications, surveys, and special reports. Educational programs:

- CED Executive Series (http://www.cednc.org/education/executive/)
- FastTrac (http://www.cednc.org/education/FastTrac.html)
- Special Interest Roundtables (http://www.cednc.org/events/networking/)

- CED Entrepreneurial Scholars Program (http://www.cednc.org/education/ced-scholars.html)
- Future Entrepreneurs (http://www.cednc.org/education/fp/)
- Capital Connection (http://www.cednc.org/capitalconnection/index.html)
    - Innovator's Quarterly Workshop (http://www.cednc.org/capitalconnection/index.html#quarterly)
    - Expert Teams (http://www.cednc.org/programs/capital_connection/expert_teams.html)
    - FastTrac Tech (http://www.cednc.org/education/fasttrac_tech.html)
    - STREAK – mentoring/critiquing program (http://www.cednc.org/education/Streak.html)
    - Capital Connection Luncheons (https://secure.cednc.org/programs/capital_connection/luncheon.htmls)
- Venture 2001 (http://www.cednc.org/venture/2001)

Family Firm Institute (FFI) is an international professional membership organization dedicated to providing interdisciplinary education and networking opportunities for family business advisors, consultants, educators, and researchers and to raising public awareness about trends and developments in the family business field. FFI members are lawyers, therapists, financial professionals, business and management consultants, family business advisors, educators, and researchers – the entire spectrum of professionals who advise, study or work with family businesses and family offices. http://ffi.org/

Institute for Innovation, Creativity, and Capital (IC^2) is a University of Texas research laboratory dedicated to the continuing, sustainable economic growth of the nation and the world. IC^2's mission is to explore, experiment with, and extend capitalism to generate economic prosperity that leads to sustainable and civil societies. IC^2 has a suite of activities to support its mission, including: the Austin Technology Incubator, the Masters of Science and Technology Commercialization degree program, a global practice to educate and train others in leading-edge economic development, and an E-Learning and Training laboratory for ensuring that every citizen has the opportunity to gain the necessary skills to be productive and employed. http://www.ic2.org/

Kauffman Foundation (The Ewing Marion Kauffman Foundation) is an operating and grantmaking foundation that works toward the vision of self-sufficient people in healthy communities. Its mission is to research and identify unfulfilled needs of society, and to develop, implement and/or fund breakthrough solutions that have a lasting impact and offer people a choice and hope for the future. The Kauffman Foundation's work is focused on two areas: youth development and entrepreneurship. http://www.emkf.org/. It offers an important resource – Entreworld – the entrepreneur's search engine. http://www.entreworld.org/

National Association for Community College Entrepreneurship (NACCE) is a newly formed national organization for providing a system of entrepreneurial and incubator education of community colleges. The goal is to use the community college system to accelerate new venture creation in the U.S. The organization was founded at Springfield Technical Community College, whose Technology Park and Enterprise Center received an "Excellence in Urban Economic Development Award" from the U.S. Department of Commerce in 2001. Community colleges at all stages of development in their entrepreneurial programs are welcome to participate in an inaugural conference scheduled for October 2003. www.nacce.com.

National Association for the Self-Employed (NASE) is the largest non-profit, non-partisan association of its kind in the United States. It lobbies on behalf of small business owners and entrepreneurs, dispenses advice, and offers membership benefits, such as health insurance coverage. http://www.nase.org

National Collegiate Inventors and Innovators Alliance (NCIIA) is an initiative of the Lemelson Foundation. It is a national, interdisciplinary community of faculty and students with an interest in team-based, commercially focused innovation. The intent is to support faculty and students in the development of products and ventures as they prepare for careers in invention, innovation, and entrepreneurship. NCIIA offers dynamic faculty conferences and workshops in which participants share technical information and ideas, learn more about new pedagogical techniques, and discuss effective curricular models. Meetings feature presentations of funded projects, exhibitions of student work, and information on creative problem solving, technology commercialization, entrepreneurship, and approaches to group based experiential learning. NCIIA also sponsors conferences, competitions, and workshops related to creativity and technological entrepreneurship. (also see NCIIA under Funding Sources). http://www.nciia.org/

National Commission on Entrepreneurship (NCOE) was created to focus public policy on the role of entrepreneurship in the national economy and to articulate policies that will foster its continued growth. The NCOE is a resource for anyone interested in entrepreneurship and public policy. Their website includes a list of entrepreneurial materials and books. http://www.ncoe.org/

National Consortium of Entrepreneurship Centers is supported by the Kauffman Foundation, NASDAQ and Beacon Venture Capital, and led by the University of Maryland, the University of Southern California, and Ball State University. Conferences are developed to bring together the best entrepreneurship centers in the world. The Consortium seeks to be the focal point for entrepreneurship centers to continue the advancement of entrepreneurial excellence. Its administrative home is Ball State University. http://www.nationalconsortium.org/

National Consortium for Life Sciences Entrepreneurship, funded in 2000, is a partnership between the Ewing Marion Kauffman Foundation (http://www.emkf.org/) and sixteen members from Universities around the United States, all seeking to foster and promote Life Science Entrepreneurship by establishing a network of national cooperation among colleges and universities. Consortium members seek to develop and implement innovative interdisciplinary solutions that enhance the education and training of leaders Life Sciences Entrepreneurship. The Objectives of the Consortium:

- Foster the development and training of leaders in Life Sciences Entrepreneurship education and business
- Promote the inclusion of diverse disciplines in life Sciences Entrepreneurship education
- Create opportunities for cooperation among colleges and universities in life Sciences Entrepreneurship education and training
- Develop nationally recognized innovation interdisciplinary Life Sciences Entrepreneurship education and training programs
- Create a national culture that supports the transfer of Life Sciences technologies from university laboratories to commercialization
- http://www.entrepreneurship.usf.edu/ce_NatConstLifeSciencesEntrp.html

National Foundation for Women Business Owners (NFWBO), now known as The Center for Women's Business Research, is the premier source of knowledge about women business owners and their enterprises worldwide. http://www.nfwbo.org/

National Venture Capital Association (NVCA) is a member-based trade association that represents the venture capital industry. Its membership consists of venture capital firms and organizations that manage pools of risk equity capital designated for investment in young, emerging companies. Currently, the NVCA is comprised of 400+ member firms, representing the

majority of venture capital invested in U.S. based companies. NVCA's mission is to foster the understanding of the importance of venture capital to the vitality of the U.S. and global economies; to stimulate the flow of equity capital to emerging growth companies by representing the public policy interests of the venture capital and private equity communities at all levels of government; to maintain high professional industry standards; facilitate networking opportunities; and to provide research data and professional development for its members. The American Entrepreneurs for Economic Growth (AEEG) is the affiliate organization of the National Venture Capital Association (NVCA). The AEEG is the largest nationwide network of emerging growth companies that focuses on public policy issues impacting rapidly growing enterprises. AEEG represents over 14,000 CEOs of emerging growth companies. http://www.nvca.org/

Small Business Institute Directors' Association (SBIDA) (http://www.cba.uc.edu/cbainfo/sbida/welcome.htm) has the mission to strengthen the small business/entrepreneurship sector of the free enterprise system, provide entrepreneurship education, and support economic development and diversification through teaching, consulting, training, and field research with small businesses and local communities. Teaching, consulting, training, and field research are provided to small, entrepreneurial, and family-owned businesses, students, and local business communities. SBIDA programs serve to:

- Act as a vehicle to improve and expand educational programs for *small business/entrepreneurship* in colleges and universities.
- Enhance the relationship between faculty of schools with *small business, entrepreneurship, and family business* programs and the business community by developing educational programs that meet community needs.
- Encourage the relationship and cooperation between faculty of schools with *SBIDA-associated* **Small Business Institutes®** *(SBIs)* and other organizations – academic, professional, and service – concerned with the small business community.
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Students in Free Enterprise (SIFE) is a global, non-profit organization that is literally changing the world through highly dedicated student teams on more than 1,400 university campuses in 33 countries. SIFE offers these students the opportunity to develop leadership, teamwork and communication skills through learning, practicing and teaching the principles of free enterprise, thereby improving the standard of living for millions in the process. Guided by distinguished faculty advisors and supported by businesses around the globe, SIFE Teams teach important concepts through educational outreach projects, including market economics, entrepreneurship, personal and financial success, and business ethics to better themselves, their communities and their countries. Each year, SIFE competitions are held worldwide, drawing together thousands of students and business leaders to pay tribute to these extraordinary educational outreach projects. http://www.sife.org/index.asp

United States Association for Small Business and Entrepreneurship (USASBE) was originally founded in 1957 as the International Council for Small Business (ICSB) as a comprehensive organization of outstanding researchers, scholars, teachers, administrators, and public policy makers interested in entrepreneurship and small business. As the organization grew, members decided to form national affiliates, and the U. S. affiliate of the ICSB was established in 1981. In 1985, the name was changed to the United States Association for Small Business and Entrepreneurship (USASBE). USASBE is an eclectic group of government officials, directors of small business development centers, and academics in fields like finance, marketing, management, and economics united by their common interest in entrepreneurship and small business. http://www.usasbe.org/about/index.asp

Venturefest was launched in 1990 by a group of leading Oxfordshire entrepreneurs as a two-day international event designed to bring entrepreneurs, investors and support services together to provide the advice, ideas and funding necessary to cultivate successful new technology-based businesses. It offers information to guide a start-up company through every aspect of entrepreneurship, from setting up a business plan to procuring funding. The fair continues to include a series of talks and panel discussions as well as a company exhibition. Venturefest now attracts 1,500 attendees and provides an anticipated annual forum for an exchange of ideas and information between business leaders in the fields of science, technology and innovation as well as an opportunity for entrepreneurs to present their plans to potential funders. The overall success of the event has resulted in the formation of an online forum called *VenturefestOxford.net*. http://www.venturefestoxford.net/default.asp

Young Entrepreneurs' Organization (YEO) is a global, non-profit educational organization for business owners under age 40. YEO strives to help its members build upon their successes through an array of learning and networking opportunities. With more than 4,700 members in 104 chapters and 35 countries around the world, YEO provides its members access to a dynamic network of peers on an international level. http://www.yeo.org/

Academic-Engineering Entrepreneurship

American Society for Engineering Education (ASEE) is a non-profit member association, founded in 1893, dedicated to promoting and improving engineering and technology education. ASEE has more than 12,000 deans, professors, instructors, students and industry representatives. http://www.asee.org/

Engineering Conferences International (ECI) sponsors such conferences as *Teaching Entrepreneurship to Engineering Students*, Monterey, California, January 12-16, 2003. Co-sponsors: ASEE and NCIIA. bhconf@poly.edu; www.engconfintl.org

Institute of Electrical and Electronics Engineers, Inc. (IEEE) is a non-profit, technical professional association of more than 377,000 individual members in 150 countries. Through its members, the IEEE is a leading authority in technical areas ranging from computer engineering, biomedical technology and telecommunications, to electric power, aerospace and consumer electronics, among others. The IEEE holds annually more than 300 major conferences. http://www.ieee.org/

Stanford Technology Ventures Program (STVP) – Roundtable of Entrepreneurship Education for Scientists and Engineers (REE): STVP focuses on teaching high technology entrepreneurship to scientists and engineers, scholarly research on strategy and organizational behavior in high technology firms, and outreach to faculty in other universities who teach technology entrepreneurship. A key part of the outreach effort is the annual conference, called the Roundtable on Entrepreneurship Education (REE), which is designed to stimulate communication and collaboration among faculty who teach high technology entrepreneurship in universities around the world. REE offers an opportunity for established entrepreneurship programs to share their success stories, and for new and established programs to learn how to enhance their offerings. In addition to the annual conference at Stanford University, STVP co-hosts two international conferences: REE Europe and REE Asia. http://ree.stanford.edu/

Small Business Assistance

Michigan Small Business Technology Development Center (MI-SBTDC) is a network that provides a full range of services for a variety of small businesses that are emerging and growing throughout Michigan – new venture companies, existing small businesses, expanding businesses, new technology companies, and innovators. The MI-SBTDC is known throughout Michigan for its quality counsel, training and market research capabilities. All services are available at low- or no-cost because of the financial support of the Small Business Administration and local partners in each region. http://www.misbtdc.org/MISBDCServices.asp

National Federation of Independent Business (NFIB) is the largest advocacy organization representing small and independent businesses in Washington, D.C. and all 50 state capitals. NFIB was ranked the most influential business organization (and 3rd overall), in "Washington's Power 25" survey conducted by Fortune magazine. NFIB also gives its members a power in the marketplace. By pooling the purchasing power of its 600,000 members, the National Federation of Independent Business gives members access to many business products and services at discounted costs. NFIB also provides timely, informational resources designed to help small businesses succeed. http://www.nfib.com/cgi-bin/NFIB.dll/Public/SiteNavigation/home.jsp

Small Business Administration (SBA) is a Federal government agency known as "America's Small Business Resource." SBA provides financial, technical, and management assistance, including access to grants, to help Americans start, run, and grow their businesses and offers these services in partnership with SBDCs, USEACs, BICs, SCOREs, WBCs. http://www.sba.gov/, http://www.sba.gov/classroom/

- *U.S. Export Assistance Centers (USEAC)* are located in major metropolitan areas throughout the United States, are one-stop shops ready to provide small- or medium-sized business with local export assistance. The centers offer personalized assistance by professionals from the U.S. Small Business Administration, the U.S. Department of Commerce, the U.S. Export-Import Bank and other public and private organizations.

- *Business Information Centers (BICs).* Supported by the SBA, they provide a one-stop location where current and future small business owners can receive assistance and advice. BICs combine the latest computer technology, hardware and software, an extensive small business reference library of hard copy books and publications and current management video tapes to help entrepreneurs plan their business, expand an existing business or venture into new business areas. The use of software for a variety of business applications offers clients of all types a means for addressing diverse needs. http://www.sba.gov/bi/bics/bicfactsheet.html

- *Office of Women's Business Ownership (*OWBO). Promotes the growth of women-owned businesses through programs that address business training and technical assistance, and provide access to credit and capital, federal contracts, and international trade opportunities. With a women's business ownership representative in every SBA district office, a nationwide network of mentoring roundtables, women's business centers in nearly every state and territory, women-owned venture capital companies, and the Online Women's Business Center, OWBO is helping unprecedented numbers of women start and build successful businesses. At every stage of developing and expanding a successful business, the Office of Women's Business Ownership is here to counsel, teach, encourage and inspire. http://www.onlinewbc.gov/

SCORE (Service Corps of Retired Executives) is a non-profit association dedicated to entrepreneur education and the formation, growth and success of small business nationwide. SCORE volunteers, known as "Counselors to America's Small Business," provide free,

confidential face-to-face and email business counseling to America's entrepreneurs who are starting, building, or growing their business. Counseling and workshops are offered at 389 chapter offices across the country. http://www.score.org/

Small Business Association of Michigan (SBAM) is a statewide trade association organized for the exclusive intent and concern of small business in Michigan. They provide leadership in the promotion of free enterprise and other common interests of small businesses in Michigan. Its goal is to help its members succeed by removing barriers to their success (e.g., legislative, governmental, economic, educational.) Members are Small businesses with less than 500 employees, and gross sales less than $10,000,000. Nearly all types of businesses are represented – retail, service, professional, construction, agricultural, manufacturing, etc. As a result SBAM members comes from across the spectrum of SIC codes. Specific benefits include:

- Money saving benefits (e.g. group medical rates, utility, shipping)
- Advocacy
- Reports on the issues important to small businesses in Michigan (e.g., quarterly barometer on the health of small businesses)

http://www.sbam.org/who/intro.htm

Incubation

Association of University Research Parks (AURP) mission is to promote and support the development and operation of university research parks worldwide. AURP serves a broad community consisting of planned and operating research parks and technology incubators around the world. In addition, a range of university, governmental, not-for-profit and private organizations interested in the development and operation of technology projects and programs, comprise the balance of AURP membership. For those involved in technology transfer and commercialization or building economic development in communities through technology, AURP has valuable benefits and access to a vital network of professionals worldwide. http://www.aurrp.org/main.html

National Business Incubation Association (NBIA) is a leading organization advancing business incubation and entrepreneurship. NBIA provides professionals with the information, education, advocacy and networking resources to bring excellence to the process of assisting early-stage companies. http://www.nbia.org/

Entrepreneurship Publications

Articles

University Based Entrepreneurship Programs

- Can Entrepreneurship be Taught? http://www.entrepreneur.com/article/0,4621,307167-1,00.html
- Charney, A. & Libecap, G., "Impact of Entrepreneurship Education," Insights: A Kauffman Research Series, 2000, http://www.entreworld.org/Bookstore (click 'reports and journal reprints').
- Cohen, A.R., "Mainstreaming Corporate Entrepreneurship: Leadership at Every Level of Organizations," Babson Entrepreneurial Review, October 2002, pp. 5-15, http://www2.babson.edu/babson/Babsoneshipp.nsf/Public/beroverview
- Dilts, J. & Fowler, S., "Internships: Preparing Students for an Entrepreneurial Career," Journal of Business and Entrepreneurship, Vol. 11, No. 1, March 1999, http://www.nmsu.edu/jbe/TOC/PDF/dilts.pdf
- Evanson, D.R. & Berof, A., "Earning Curve: Entrepreneurship programs at universities nationwide have capital-hungry business owners heading back to school," Entrepreneur, 26(12) 63-66.
- Johnson, T.L., "Wanted: Entrepreneurial Skills," Black Enterprise Magazine, April 1996.
- Kayne, Jay, "State Entrepreneurship Policies and Programs," Kauffman Center for Entrepreneurial Leadership, November 1999, p. 25, http://www.entreworld.org/Bookstore (click 'reports and journal reprints').
- Rice, Mark P., "From the Editor," Babson Entrepreneurial Review, October 2002, pp. 1-3, http://www2.babson.edu/babson/Babsoneshipp.nsf/Public/beroverview
- Seymour, Nicole, "Entrepreneurship Education in American Community Colleges and Universities," CELCEE digest #01-06, November 2001, p. 3, http://www.celcee.edu/publications/digest/Dig01-06.html
- Singh, R., & Magee, B. "Entrepreneurship Education: Is there a growing crisis?," USASBÉ conference proceedings, 2001, http://www.usasbe.org/conferences/2001/proceedings/papers/076.pdf
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Entrepreneurship Curriculum for Engineering

- Auster, B., "Despite the dot-com bust – and tragic events of September 11 – entrepreneurship programs are alive and well at engineering schools across the country," PRISM, January 2002, http://www.asee.org/prism/jan02/open.cfm
- Creed, C.J., Suuberg, E.M., Crawford, G.P., "Engineering Entrepreneurship: An Example of a Paradigm Shift in Engineering Education," Journal of Engineering Education, April 2002, pp. 185-195, http://www.asee.org/jee/papers/EE012-01-0020R1%5B185-195%5D.pdf

- Lamancusa, J.S., Jorgenson, J.E., Zayas-Castro, J.L., "The Learning Factory – A New Approach to Integrating Design and Manufacturing into the Engineering Curriculum," Journal of Engineering Education, April 1997, pp. 103-112, http://www.asee.org/jee/papers/00195.PDF

- McGraw, D., "Grooming New Age Edisons," Prism, April 1999 http://www.asee.org/prism/april/html/cover.html

- Mendelson, M.I., "Entrepreneurship in a Graduate Engineering Program," Journal of Engineering Education, October 2001, pp. 601-607, http://www.asee.org/jee/papers/EE010-01-057%5B601-607%5D.pdf

- Standish-Kuon, T., Rice, Mark P., "Introducing Engineering and Science Students to Entrepreneurship: Models and Influential Factors at Six American Universities," Journal of Engineering Education, January 2002, pp. 33-39, http://www.asee.org/jee/papers/033-039.pdf

- Wang, E.L., Kleppe, J.A., "Teaching Invention, Innovation, and Entrepreneurship in Engineering," Journal of Engineering, October 2001, pp. 565-570, http://www.asee.org/jee/papers/EE010-01-050%5B565-570%5D.pdf

Studies

- *Entrepreneurial Research Consortium (ERC)* consists of over 30 institutions and over a hundred scholars who are conducting an international study of business starts-ups. The ERC has initiated a large-scale project to identify sizable samples of so-called nascent entrepreneurs – people who say that, yes, indeed, they are in the process of actually starting a business – and to follow them over time to see how things work out. An extensive telephone interview and mail survey in the United States has been supplemented by comparison data from Australia, Canada, Finland, Germany, Norway, and Sweden. Because the ERC is financed by contributions from participating institutions, the data will remain proprietary for several years after the completion of the research. Financial support has been provided by the Kauffman Center for Entrepreneurial Leadership, the National Science Foundation, and others. http://www.wm.edu/PSYC/erc.html

- *Global Entrepreneurship Monitor (GEM)* research program is an annual assessment of the national level of entrepreneurial activity. Initiated in 1999 with 10 countries, expanded to 21 in the year 2000, with 29 countries in 2001 and 37 countries in 2002. It expects close to 50 national teams in 2003. The research program, based on a harmonized assessment of the level of national entrepreneurial activity for all participating countries, involves exploration of the role of entrepreneurship in national economic growth. Systematic differences continue, with few highly entrepreneurial countries reflecting low economic growth. There is, further, a wealth of national features and characteristics associated with entrepreneurial activity. Those new to the research program will find global comparisons, national reports, and special topic reports based on the annual data collection cycle. Over 120 scholars and researchers are actively participating in the GEM project. http://www.gemconsortium.org/

    - *The GEM 2002 Global Report* launched on 13 November along with 2002 National Reports can be downloaded for **free** by following this link. http://www.gemconsortium.org/category_list.asp?cid=125
    - *GEM Global and Country Reports* from 2001, 2000 & 1999 can also be downloaded for free by visiting this link http://www.gemconsortium.org/category_list.asp.

- *"What Women Want in Business: A Survey of Executives and Entrepreneurs"* (http://www.gsb.columbia.edu/entprog/initiatives/kfstudy.pdf). Recently released jointly by Korn/Ferry International, the Eugene M. Lang Center for Entrepreneurship and the Duran Group. The study, which surveyed 425 women, who worked at least 5 years for a corporation before leaving to join or start a small firm, contradicts many of the commonly held ideas about why women leave corporate America.

- *Family-Owned Businesses: They're Not Just "Mom and Pops" Anymore.* A new survey of family-owned businesses finds that this sector of the economy is booming. The Mass Mutual Financial Group/Raymond Institute American Family Business Survey polled 1,000 firms and found that revenues from family-owned businesses were up 50% (to $36.5 million) since 1997. These firms are also good employers, few have cut jobs in the past three years and more than 50% plan to hire more people this year. Other interesting highlights of the study, conducted by researchers at Babson College, Kennesaw State University, Chicago's Loyola University, include:

    - These firms are optimistic about the future: 60% consider themselves "very optimistic" about their firm's prospects
    - Debt levels are low: more than 25% have no debt beyond trade payables
    - Succession is an issue of growing importance: 39% of firms expect to change leadership in the next five years
    - The report is available at www.raymondinstitute.org/surveyresults.html

- *Everything You Ever Wanted to Know about Incubators But Were Afraid to Ask.* The National Business Incubation Association (NBIA) has released an interesting new study, "A Brief History of Business Incubation in the United States." Written by NBIA's President, Dinah Adkins, this booklet provides a nice summary of how incubators first got started, and how they work today. www.nbia.org.

- *Understanding Entrepreneurship Promotion as an Economic Development Strategy: A Three-State Survey,* Report by Erik R. Pages and Kenneth Poole. A available at www.ncoe.org/research/3statesurveyfin.doc

- *Entrepreneurial Arkansas: Connecting the Dots*, by Brian Dabson and Kent Marcoux, lays out a new vision for promoting entrepreneurial development in Arkansas. The study includes a number of recommendations, including the introduction of entrepreneurship education curriculum in all primary and secondary schools across the state. Such training should also be a credit option in the state's colleges and universities. To access the study, visit http://www.wrockefellerfoundation.org/pdfs/ConnectTheDots.pdf

Journals

- *The International Journal of Entrepreneurship Education (IJEE).* (not sure why this was here)The mission of the IJEE is to enhance (business and economics) entrepreneurship education worldwide through publication of high quality refereed case studies, review/perspective articles on advances in entrepreneurship research, lectures, as well as theoretical and applied research on entrepreneurship education. Publishing leading international teaching materials including case studies, review/perspective articles on advances in entrepreneurship research, lectures and research on entrepreneurship education. http://www.senatehall.com/ijee/

Economic Development Materials

- *Southern Growth Policies Board.* A non-partisan public policy think tank based in Research Triangle Park, North Carolina. Formed by the region's governors in 1971, Southern Growth Policies Board develops and advances visionary economic development policies by providing a forum for partnership and dialog among a diverse cross-section of the region's governors, legislators, business and academic leaders and the economic- and community-development sectors. This unique public-private partnership is devoted to strengthening the South's economy and creating the highest possible quality of life. http://www.southern.org/pubs/index.shtml. Southern Growth publications by research focus:

    - Technology and Innovation: Includes technology transfer, entrepreneurship, telecommunications and digital divide

    - Globalization: Includes international trade and investment, immigration and international education

    - Workforce: Includes workforce development, demographic change, tools for a self-reliant workforce

    - Community: Includes leadership development, civic engagement, growth management, community development and publications of the Southern Consortium of University Public Service Organizations (SCUPSO)

    - Southern Compass documents economic development news in the South. It is compiled from reports from the Southern Technology Council, the Southern Global Strategies Council, the Council on the Southern Economy, the Council on a New Economy Workforce, the Council on the Southern Community and Southern Growth staff. http://www.southern.org/compass/index.asp

Public Policy

- *The National Commission on Entrepreneurship (NCOE).* The Ewing Marion Kauffman Foundation funds the NCOE. It is a non-partisan, non-profit organization that focuses public policy on entrepreneurship. www.ncoe.org,

    - *NCOE Update* – a biweekly report on economics and the entrepreneurial economy. It brings short summaries and analyses of trends and transformations driving the New Economy. To subscribe or unsubscribe, send an email to ncoe@sso.org.

Radio

- *StartupNation®.* This organization, launched by Jeffrey and Richard Sloan in 2001, consists of radio, newsletters, events and coaching. The radio program is heard in 112 counties across four states and in Canada. Its mission is to offer insights and strategies for entrepreneurs who seek to take control of their financial features. The hour-long show features interviews with both prominent and new entrepreneurs. http://www.startupnation.com

Web Links to Resources

This section is a compilation of university links pages that will lead the user to various entrepreneurship-related web sites, some of which are listed here. The actual links pages may be changed at any time. It is hoped that MEEN will become the primary source for entrepreneurship-related resources, including web sites. This would eliminate the current duplication of efforts seen by visiting various university entrepreneurship web pages.

Georgia State University

http://www.cba.gsu.edu/rec/links.htm

- www.gsu.edu/~wwwsbp/ is the site of Georgia State University's Small Business Development Center, which provides individual counseling and small business classes for the community
- www.Entreworld.org has been put together by the Kauffman Foundation of Kansas City and provides a variety of information and resources of interest to entrepreneurs. Another of the top places on the web for entrepreneurship information
- www.sba.gov is the site of the United States Small Business Administration, a part of the federal government of the United States
- http://www.sec.gov/info/smallbus.shtml is the area of the Securities and Exchange Commission web site that deals with small business, another branch of the United States federal government
- http://www.smallbusinessschool.org/ is the site of a PBS television series about small business. It has lots of tips and examples about successful small businesses
- http://sme.cordis.lu/home/index.cfm contains information and research about high technology small businesses in Europe
- www.mip.org is the Microenterprise Innovation Project of US Agency for International Development, a branch of the United States federal government. It provides assistance to very small new ventures, particularly in developing countries

Massachusetts Institute of Technology (MIT) Entrepreneurship Center

http://entrepreneurship.mit.edu/services_resources.php

- **Portals of Entrepreneurship Resources**
  - *MIT$50K Market Research Guide* – numerous resources for supporting entrepreneurs writing business plans and trying to start a company (http://50k.mit.edu/resources/research-guide.html)
  - *Accel Resources for Entrepreneurs* (http://www.accel.com/resources.asp)
  - *Business.com Resources for Small Businesses* (http://www.business.com/directory/small_business/index.asp)
  - *MIT Career Resources* – helpful links and resources in various fields: Management Consulting, Entrepreneurship, Biotechnology and Medical Devices, Energy & Environmental Policy, Finance and Banking, Intellectual Property, Science Journalism, and Internships/Fellowships (http://web.mit.edu/career/www/GraduateStudents/resources_by_field.html)
  - *EntreWorld: Resources for Entrepreneurs* provides resources for entrepreneurs. Sponsored by the Kauffman Center for entrepreneurial Leadership (http://www.entreworld.org/)
  - *Yahoo's Small Business Information* – directory of small business resources (http://smallbusiness.yahoo.com/)

- **Services for Entrepreneurs**
  - *Entrepreneur America* provides mentoring for start-up companies. Founded by Rob Ryan, founder and former CEO of Ascend Communications (http://www.entrepreneur-america.org/)
  - *Cambridge Innovations* (http://www.cambridgeincubator.com/)
  - *Cambridge Chamber of Commerce (CCC)* is a 1,400-member not-for-profit organization representing all sectors of the Cambridge economy. Its diverse membership and deep expertise in government affairs, business development, professional development and business philanthropy attract employers of all sizes (http://www.cambridgechamber.org/chamber/learn.html)
  - *Cambridge Chamber of Commerce Business Toolkit* addresses practical concerns of businesses starting up in Cambridge, MA: real estate, hiring, insurance & benefits, regulatory issues, networking, professional development, etc. (http://www.cambridgechamber.org/business/business.html)
  - *Compensation Link* provides convenient access to the most comprehensive, current information on pay program design and administration, product listings, articles, conferences, seminars, and workshops (http://www.compensationlink.com/)
  - *Delphion* offers Intellectual Asset Management (IAM) services, transforming intellectual property into strategic corporate assets, development, etc. (http://www.delphion.com/)
  - *The Foundation for Enterprise Development* provides leading edge equity compensation and employee ownership strategies (http://www.fed.org/)
  - *Infinidex* offers contact management software that facilitates contact exchange within various organizations and networks (http://www.infinidex.com/)
  - *Max Hansen Group Directory of Technology Business Incubators* (Max Hansen MBA '95) – 486 incubators worldwide, 24 in Massachusetts; the leading consultant to technology business incubators (http://www.maxhansen.com/mhgdirincub.htm)
  - *nVention* creates and nurtures new companies which capitalize and commercialize a broad range of emerging technologies (http://www.nvention.sarnoff.com/)
  - *PrivateEquity.com Service Providers* – list of Service Providers in the areas of Accounting, Investment Banks, Law Firms, M&A Firms, Research & Publishing, Conferences, Education & Training, etc. (http://www.privateequity.com/organization_search.cfm?organization=serviceprovider)
  - *SOHO America / The Small Business Benefits Association* provides a virtual community to interact with other small-office/home-office professionals (http://www.soho.org/)

- **Funding Resources for Entrepreneurs**
  - *How to win VC* – article from the Red Herring, September 1, 1999 (http://www.redherring.com/insider/1999/0901/vc-vcps.html)
  - *CapitalVenue* provides entrepreneurs and small and medium companies with direct access to sources of local, national, regional, and global capital ranging from angel investors, venture capital, corporate and bank capital, as well as structured business acceleration programs (http://www.capitalvenue.com/)
  - *The Coleman Foundation* – a not-for-profit, private, independent foundation committed to the principles of self-determination, self-reliance, self-respect, and

individual initiative, believing these to be essential to the development of entrepreneurs and their pursuit of self-employment (http://www.colemanfoundation.org/index1.html)

- *The Ewing Marion Kauffman Foundation* – an operating and grantmaking foundation that works toward the vision of self-sufficient people in healthy communities, focusing specifically on youth development and entrepreneurship (http://www.emkf.org/)
- *National Association of Small Business Investment Companies* – the voice of the SBIC industry before Congress and the Administration. The goal is to build and maintain a strong and profitable small business investment company (SBIC) industry (http://www.nasbic.org/)
- *National Venture Capital Association (NVCA)* is the trade association that represents the venture capital industry. It is a member-based organization. Its membership consists of venture capital firms and organizations that manage pools of risk equity capital designated for investment in young, emerging companies. Currently, the NVCA has 400+ member firms, representing the majority of venture capital invested in U.S. based companies. (http://www.nvca.com/)
    - *NVCA Article: "What is Venture Capital?"* (http://www.nvca.org/def.html)
    - *NVCA List of Venture Capital Firms* (http://www.nvca.org/members.html)
- *Private Equity* links to websites of venture capital and private equity firms (http://www.privateequity.com/)
- *SBIR / STTR Grant Information* – The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs provide over 1 billion dollars a year to small businesses and university affiliates for research and development in a wide range of scientific and technical areas (http://www.sba.gov/sbir/indexsbir-sttr.html)
- *Small Business and Entrepreneurship Resources in Financing* – Helpful list of links to funding resources (http://www.prenhall.com/scarbzim/html/links/links11.html)
- *Venture Capital Institute* provides quality educational services to worldwide venture capital managers and private equity investors under the, sponsorship of the National Association of Small Business Investment Companies and the National Venture Capital Association. (http://www.vcinstitute.org/)
- *The Venture Capital Market Place* (http://www.v-capital.com.au/)- a market place where member investors are introduced to registered private investment opportunities. *VC Directory* (http://www.vcmarketplace.com/vcdirectory.htm)
- *Venture Capital Resource Library* – a directory of venture capital firms and more than 3,000 tradeshows. (http://www.vfinance.com/)
- *Venture-Preneurs Network (AngelDeals.com)* AngelDeals.com, an outgrowth of the Venture-Preneurs TM Network, is a virtual global network for the business community of Entrepreneurs seeking funding and growth, Investors seeking deal flow, Business Professionals seeking visibility and Job Seekers / Employers (http://venturepreneurs.com/)
- *Venture One* – a venture capital research firm, offering investors, service providers, and entrepreneurs comprehensive, accurate, and timely information on the venture capital industry (http://www.ventureone.com/)
- *Venture Wire* – a single source of hard news about high-tech, private companies, e-mailed every business day (http://www.venture.wire@venturewire.com/)

- **Legal and Government Resources**

    - *Essential Links to Taxes* provides tax information pertinent to the entrepreneur (http://www.el.com/elinks/taxes/)
    - *Morse, Barnes-Brown & Pendleton* (http://www.mbbp.com/) – a boutique law firm that services start-ups and emerging technology companies. Download one-page profile: (http://entrepreneurship.mit.edu/Downloads/MBBPdescription.pdf)
    - *United States Patent and Trademark Office* – information on the patent application process and will soon contain a comprehensive database of patent and trademark filings (http://www.uspto.gov/)
    - *U.S. Small Business Administration* provides the latest information about programs that support small businesses and start-ups (http://www.sbaonline.sba.gov/)

Stanford University – STVP Program

- *How to Build an Entrepreneurship Center*
  (http://stvp.stanford.edu/presentations/EshipCenterGlobal.pdf)
  Information about why such a program is valuable, key questions that should be asked before starting, ideas for basic and advanced programs, information about valuable resources, as well as suggestions for overcoming obstacles.

- *Designing an Entrepreneurial Work-Study Program for Engineers*
  (http://stvp.stanford.edu/presentations/MFPOverview.pdf)
  The Mayfield Fellows Program at Stanford University

- *Building Successful Entrepreneurship Education Programs for Engineers and Scientists*
  http://stvp.stanford.edu/presentations/EshipCenterGlobal.pdf -

University of California – Los Angeles

- **Resources for Entrepreneurs** (includes the list of organizations below)
  http://www.anderson.ucla.edu/research/esc/EntrResour.html

  Federal/National Small Business Assistance
  State Small Business Assistance
  Regional Small Business Assistance
  Entrepreneurial Resources & Associations
  Technology & E-commerce
  Financing Assistance
  Resources for Start-ups & New Ventures
  Business & Finance Resources
  Periodicals & Magazines
  Business Assistance for Women Entrepreneurs
  Business Assistance for International & Minority Entrepreneurs

APPENDICES

Appendix A

U.S. News & World Report – Business Graduate Entrepreneurship Programs

2002

1. Babson College
2. Stanford University
3. University of Pennsylvania
4. Harvard University
5. University of Southern California
6. Massachusetts Institute of Technology
7. University of Texas – Austin
8. University of California – Los Angeles
9. Columbia University
10. University of California – Berkeley
11. University of Michigan – Ann Arbor
12. Northwestern University
13. University of Virginia
14. Indiana University – Bloomington
15. New York University
16. University of Arizona
17. University of Maryland – College Park
18. University of Colorado – Boulder
19. University of Georgia
20. San Diego State University
21. University of Chicago
22. University of North Carolina – Chapel Hill
23. Carnegie Mellon University
24. Case Western Reserve University
25. Dartmouth College
26. DePaul University
27. Duke University

2004

1. Babson College
2. University of Pennsylvania
3. Stanford University
4. Harvard University
5. University of Southern California
6. Massachusetts Institute of Technology
7. University of Texas – Austin
8. University of California – Los Angeles
9. University of California – Berkeley
10. University of Michigan – Ann Arbor

Appendix B

Member Universities of the National Consortium of Entrepreneurship Centers (NCEC)

The NCEC page contains direct links to all member organizations.
http://www.nationalconsortium.org/members.html

Babson College
Ball State University
Baylor University
Benedictine College
Boston University
Bradley University
Brigham Young University
Carnegie Mellon University
Colorado State University
Community College of Indiana
Cornell University
Council for Entrepreneurial Development
DePaul University
Drexel University
George Mason University
Georgia State University
Indiana University
Iowa State University
John Carroll University
Kennesaw State University
Lamar University
Loyola Marymount University
Massachusetts Institute of Technology
Northeastern University
Northern Kentucky University
San Diego State University
Southern Methodist University
St. Louis University
Stanford University
Syracuse University
Texas Christian University
Tufts University
University of Akron
University of Arizona
University of Colorado
University of Cape Town
University of Hawaii
University of Illinois Chicago
University of Iowa
University of Maryland
University of Michigan
University of Missouri Kansas City
University of Nebraska
University of North Carolina
University of North Carolina – Greensboro
University of Notre Dame
University of Portland
University of South Carolina
University of Southern California
University of St. Thomas
University of South Africa – Capetown
University of Virginia
University of Washington
University of Western Ontario
University of Wisconsin – Madison
Wake Forest University
Wichita State University

Appendix C

Business School Entrepreneurship Curriculum and Course Descriptions

Note that the listings of course offerings below, as well as the course descriptions, were those in effect at of June 2003. For more current information check the university websites.

U.S. News and World Report – Top 10 Programs in 2002

- Babson College – F.W. Olin Graduate School of Business (#1)
- Stanford University – Graduate School of Business (#2)
- University of Pennsylvania – Wharton School (#3)
- Harvard University – Harvard Business School (#4)
- University of Southern California (#5)
- Massachusetts Institute of Technology (#6)
- University of Texas – Austin (#7)
- University of California – Los Angeles (#8)
- Columbia University (#9)
- University of California – Berkeley (#10)

Babson College – F.W. Olin Graduate School of Business (#1)

http://www3.babson.edu/eship/

- **Elective Entrepreneurship Curriculum:** The elective curriculum in entrepreneurship at Babson is the largest of any of the top MBA programs. There are currently 15 independent entrepreneurship courses that fall into three broad categories:
    - *Foundation* classes – fundamental holistic entrepreneurship skills
    - *Specialty* classes – specific disciplines within entrepreneurship
    - *Support* classes – deep knowledge in one specific area study

  Prior to graduating, 90% of the student body completes elective entrepreneurship coursework at the foundation level, including writing a full business plan. Additionally, more than 63% of Babson students continue their study of entrepreneurship by enrolling in our support and specialty courses.

- **Career Paths**. Students tailor their education to fit their entrepreneurial goals. To assist students in choosing entrepreneurship courses that best fit their needs, the school has developed a series of career paths in entrepreneurship:
    - New Venture Creation
    - Corporate Entrepreneurship
    - Entrepreneurial Finance
    - Social Entrepreneurship
    - Family Business

- **Entrepreneurship Elective Curriculum Map**

Modules	Foundation	Specialty	Support
The modules represent the core curriculum of the full time MBA programs and successfully creates a culture of holistic problem solving and innovation by focusing the curriculum around the new venture creation cycle.	Foundation level electives in Entrepreneurship teach fundamental entrepreneurship skills within a holistic perspective.	Specialty level elective in Entrepreneurship address specific disciplines within entrepreneurship in more depth.	Support classes are designed to give students a very deep knowledge in one specific area of entrepreneurship Study.
100% of full-time students	90% of all MBA students	60% of all MBA students	
Creative Management in Dynamic Organizations	Entrepreneurship and the Business Plan	Family Business Management	Equity and Venture Capital
Opportunity Assessment	Entrepreneurial Finance	Social Entrepreneurship	Ethical Challenges for Entrepreneurs
Designing and managing the Delivery System	Venture Growth Strategies	Franchising, Licensing, and Distributorships	Marketing for Entrepreneurs
Growing a Business in a Changing Global Environment	Managing a Growing Business	Management Buy-ins and Buy-outs	Independent Research in Entrepreneurship
		Corporate Entrepreneurship	Corporate Culture
			Corporate Venturing and Harvest

- **Entrepreneurship Course Descriptions**

  - ***EPS 7500: Entrepreneurship.*** An Interdisciplinary course that focuses on all aspects of starting a new business, with emphasis on the critical role of recognizing and creating opportunities. Topics include attributes of entrepreneurs and entrepreneurial careers, evaluating opportunities, writing business plans, and financing the venture.

  - ***EPS 7510: Financing the Entrepreneurial Venture.*** Focuses on raising seed and growth capital from venture capital, business angels, investment banking, and commercial banking sources; and financial problems unique to the small- and medium-sized firm undergoing rapid growth. Examines actual proposals made to venture capital firms, particularly in terms of their financial viability. Course also examines financial management for entrepreneurs over the life of a business project. Includes financing start-ups, financial planning for the nonpublic smaller enterprise, going public, selling out, bankruptcy, sources of capital, and other related topics.

  - ***EPS 7520: Managing Growing Businesses.*** Designed for students who want to manage growing companies in an increasingly professional manner while still maintaining the entrepreneurial spirit that brought the company to its current growth position. Also relevant for those who want to manage larger companies to emphasize innovation and the management of opportunities rather than to concentrate on the efficient management of ongoing operations. Subject matter is organized around the following themes: measuring economic performance and obtaining information for management decision making, management control systems for innovative companies, short- and long-run planning in owner-managed businesses, and entrepreneurship and managing (professionalizing) growing companies.

  - ***EPS 7540: Corporate Venturing: Entrepreneurs in Organizations.*** Designed for entrepreneurs, managers, and consultants interested in stimulating and preserving creativity and innovation in established organizations. Topics include the forces affecting the nature and rate of innovation, the advantages and disadvantages of existing organizations in pursuing innovation objectives, and the choices made by managers at different levels in the organization that promote or hinder creativity and its successful exploitation.

- ***EPS 7550: The Social Entrepreneur.*** Focuses on the role of the social entrepreneur who is primarily concerned with increasing "societal wealth" by improving healthcare, education, cultural institutions and the like. Social entrepreneurs operate in both the not-for-profit and for-profit sectors of the U.S. economy. Course materials include films, cases, readings and speakers representing a variety of sectors – those typically associated with "societal well being" like colleges, museums, orchestras, MCOs and welfare organizations. For profit companies noteworthy for their socially responsible behavior like Newman's Own, CitySoft, Inc. and Timberland are also featured in this course. Two new models of philanthropy have developed recently. One called "social investing" features direct investment in community partnerships and employee volunteerism. The other referred to as "social venture capital" involves staged investment funding in promising non-profit organizations which, like its for profit counterparts, requires accountability for performance and the involvement of seasoned business advisors at each stage. Course participants will take a first hand look at these developments as well as others of interest to the discerning individual who wants more out of life than just financial rewards!

- ***EPS 7570: Entrepreneurship – The Key to Family Business Success.*** Designed for those students who will be entering a family-owned business, now or in the future, or expect to someday establish a business which they can leave to their children. The classes emphasize the tools and techniques that provide the entrepreneur with the greatest opportunity for success. The foundation of learning for the classes comes from case studies, readings, and lively class discussions that focus on practical methods of handling the challenges unique to businesses owned and managed by families. No formal textbook is used and the students make the decisions as to what subjects will be covered and how the class is graded. Some of the topics covered in prior classes include succession planning, handling conflicts, dealing with non-family members, re-invention of the business, management styles, strategy, and leadership. We also spend considerable time on the practical challenges facing our students, involving the evolution of the enterprise from the first generation entrepreneurial stage into the family business of the second, third and succeeding generations. We work hard to find methods whereby these entities will be successful in the future.

- ***EPS 757: Franchising and Branding.*** Focuses on "business format" franchising, but also explores issues relating to leadership, business strategy, and branding in a high-growth, multi-unit retail environment. The course also includes some material on licensing and distributorships.

- ***EPS 7572: Management Buy-Outs (MBOs) and Management Buy-Ins (MBIs).*** Focuses on the long-term plans of managers, equity owners, financiers, and other stakeholders of a corporate entity. Examines how all parties attempt to optimize their investments, and explores competing situations in which one party gains at the expense of another. The course utilizes materials from several textbooks, recent articles, cases, and guest lecturers.

- ***EPS 7573A: Venture and Growth Capital: Theory and Practice.*** Explores venture and private equity investing. The central themes of the course are venture capital investing, deals and deal structuring, valuing high-risk, long-term equity investments, creating and realizing value, and the private equity fund as an enterprise.

- ***EPS 7574: Marketing for Entrepreneurs.*** An in-depth study of entrepreneurial marketing strategies and techniques. Examines how start-ups or small to medium-sized businesses with distinct needs market within constraints. The course gives students an opportunity to gain experience with the marketing component of a business plan. Classes focus on case discussion.

- ***EPS 7575: Venture Growth Strategies.*** Focuses on the opportunities and challenges involved with the management of growth opportunities. Growth is the ultimate resource constrainer, stretching all systems in a company to the limit and often beyond. Consequently, this course will tend to use a boundary-spanning approach, investigating management "at the limit" of what you may have already learned in other functional courses. It will provide

students with a series of frameworks, analytical skills and techniques, heuristics, and decision-making tools that can be used in growing entrepreneurial businesses. The course attempts to combine various innovative pedagogical techniques in developing the student's understanding of growth management in a dynamic environment. The most important of such techniques is the computer-based simulation of a growing business entity, called the "Manufacturing and Service Challenge." Teams of students will be asked to manage companies in their growing phases, making appropriate decisions regarding all the functional aspects of the business. Exercises, presentations, and debriefing/ learning sessions are built around the simulation.

- ***EPS 7576: Corporate Culture.*** Introduces the history of corporate entrepreneurship and discusses the influence of macroeconomic variables and industrial activity on company-specific development. Students will assess their organization for receptivity to entrepreneurial initiative and apply course materials and methodologies to venturing activities. By calibrating their respective organization relative to the spectrum of corporate cultures that have been studied, students preparing to embark on a path within an identified company can gain insight on the likelihood of future venturing activity along with their potential involvement as an aspiring entrepreneur.

- ***EPS 7577: Corporate Venturing Negotiations, Compensation & Harvest.*** Explores issues related to valuing individual contributions as well as the value created through collaborative activity. Topics include compensation mechanisms for executives and determinants of intellectual property. We consider the price of financing and negotiation procedures. We also examine the alternative of strategic alliances and joint ventures as well as considerations pertaining to growing both within and away from the parent organization.

- ***EPS 7578: Spiritual Values and Entrepreneurial Leadership.*** Explores the relationship between spirituality (including both religious and secular belief systems), leadership decision-making and business execution. This course is built around the Fifth International Symposium on Business and Spirituality, which will take place March 20-22, 2002. Participants in the course will use biographical material to analyze the range of models by which leaders and entrepreneurs have integrated, or failed to integrate, spiritual beliefs and business practice, in both their decision-making, and their execution. Participants will then have an opportunity to develop their own vision for integrating spiritual values and business practice and explore the options they have, as well as the barriers they face, in doing so. Barriers and enabling factors to be addressed will include those at the societal, industry, organizational, political, financial, and personal levels.

Stanford University – Graduate School of Business (#2)

http://www.gsb.stanford.edu/ces/teaching/courses.html).

The courses supported by the CES are taught at the Stanford Graduate School of Business and are taught within the MBA curriculum. The Stanford MBA program is designed to give students a foundation in general management and does not offer an entrepreneurship degree or certificate. Other graduate level students at Stanford may register for these courses. Most of the courses are taught with a combination of a tenured faculty member paired with an experienced practitioner who has an entrepreneurial or venture capital background.

- **Entrepreneurship Course Descriptions**

  - ***FINANCE 319: Private Equity Investing Seminar.*** Focuses on private equity investing, including venture capital. Private equity and venture capital are increasingly important activities. This seminar explores selected topics in private equity investing for those MBA students who take the prerequisite course FINANCE 321, Investment Management and Entrepreneurial Finance. Private equity includes both established and early stage companies.

The course extends and deepens the entrepreneurial finance area for those with an interest in private equity, venture capital and principal investing— a global view. Utilization will be made of original case studies and lecture-discussions, building on the framework of FINANCE 321. The Seminar meets with outstanding investors.

- ***FINANCE 321: Investment Management and Entrepreneurial Finance.*** Equity investment in companies, common stocks, early stage ventures, deals, partnerships, hedge funds, or other entrepreneurial opportunities will be immediately or eventually important for most MBAs. This investment course discusses many practical and conceptual factors influencing the value of companies and deals – both publicly listed and private equity investments and on success of investment approaches. The focus of this course is on quoted and private equity investments and on entrepreneurial finance. The format of the class is primarily case discussions led by the professor and principals who were involved in the case. This course enables MBA students to learn a broad investing skill-set and to study outstanding investors

- ***FINANCE 322: Financial Intermediaries and Capital Markets.*** Covers financial markets, instruments, and institutions, with the primary focus being on the capital raising and financing activities of firms at different stages in their life cycle. One of the critical activities a company must do well to succeed is the raising of capital. The when, where, and how of raising capital is the focus of the course. The perspective will typically be that of a firm wishing to raise capital, though we will, quite often, also examine financing transactions from the viewpoint of the participating financial intermediary. The course begins by examining the players of the financial markets and the role of financial intermediaries. The course then analyzes financing choices for younger firms for which there exists little or no security price information, and then examines capital raising issues relevant to larger, listed forms. Topics to be covered in this course include the decision to go public, mechanics and pricing of initial public offerings, role of investment bankers in IPOs, privatizations, banking debt and public debt markets, securitization, junk bond markets, equity financing and signaling, convertible debt financing, the swap markets, interest rate, currency and price risk management, and issues relating to corporate hedging.

- ***GSBGEN 339: Environmental Entrepreneurship.*** Examines how market forces can be harnessed to encourage private solutions to environmental concerns. Uses case studies to show how innovative contracting must be combined with entrepreneurial visions if environmental entrepreneurship is to be successful. Draws on economic theories of principal-agent problems and contracting and on case studies of "enviro-capitalists." Students will learn how for-profit and not-for-profit organizations are using market forces by developing innovative contracts that specify the environmental products that are desired, the mechanisms for payment, and the contributions from input suppliers. In cases where governmental regulations stand in the way of private contracting and how these barriers can be overcome will be discussed. The course will also consider cases dealing with land, water, and wildlife resources and cases dealing with the tougher problems of air and water quality. Most cases will be from U.S. firms but international examples will also be considered. Students will hear directly from environmental entrepreneurs and will have an opportunity to develop their own case studies of enviro-capitalism.

- ***GSBGEN 354: Startup Globalization Strategies.*** Startups have adopted dramatically different approaches to considering the global marketplace. This course will examine these different approaches and how they are being employed in different industries and on different continents. The different modules of the course include: global strategies of the startup financing community; regional-based financing funds designed to exploit globalization; global strategies of incubators and networking groups; infrastructure providers aiming to lubricate globalization; and case studies of inter-continent and intra-continent based expansion strategies of startups

- ***STRAMGT 349: Entrepreneurial Opportunities.*** This is a seminar/workshop course, focused on the development of the entrepreneurial ideas of pre-screened teams. There will be six meetings with faculty, and five with assigned mentors. Meetings will focus on the principles of entrepreneurship as specifically applied to each group's idea(s). At the conclusion of the course, each project group will submit a business proposal (or an equivalent paper articulating why this project can not proceed) and make an oral presentation on the same topic to a panel composed of faculty, mentors, and appropriate industry guests.

- ***STRAMGT 353: Entrepreneurship: Formation of New Ventures.*** This integrative course is offered for students who at some time may want to undertake an entrepreneurial career by pursuing opportunities leading to partial or full ownership and control of a business. The course deals with case situations from the point of view of the entrepreneur/manager rather than the passive investor. Most cases involve visitors, since the premise is that opportunity and action have large idiosyncratic components. The students must assess opportunity and action in light of the perceived capabilities of the individuals and the nature of the environments they face

- ***STRAMGT 354: Entrepreneurship and Venture Capital.*** Many of America's most successful entrepreneurial companies have been substantially influenced by professionally managed venture capital. This relationship is examined from both the entrepreneur's and the venture capitalist's perspective. From the point of view of the entrepreneur, the course considers how significant business opportunities are identified, planned, and built into real companies; how resources are matched with opportunity; and how, within this framework, entrepreneurs seek capital and other assistance from venture capitalists or other sources. From the point of view of the venture capitalist, the course considers how potential entrepreneurial investments are evaluated, valued, structured, and enhanced; how different venture capital strategies are deployed; and how venture capitalists raise and manage their own funds.

- ***STRAMGT 355: Managing Growing Enterprises.*** This seminar is offered for students who, in the near term, aspire to the management and full or partial ownership of a new or newly acquired business. The seminar will deal in some depth with certain selected, generic entrepreneurial issues, viewed from the perspective of the owner/manager. Broad utilization will be made of case materials, background readings, visiting experts, and role-playing. Throughout the course, emphasis will be placed on the application of analytical tools to administrative practice.

- ***STRAMGT 356: Evaluating Entrepreneurial Opportunities.*** The primary objectives of the course are to sharpen students' skills in opportunity evaluation; help them understand the tasks, decisions, and knowledge that are required to turn an idea into a sound business opportunity; and provide a setting for integration and extension of knowledge of the functional areas through the development of a comprehensive plan for a new business. The course is organized around a project. The initial phase will be dominated by identifying a business opportunity. This will be followed by the evaluation and development of a detailed business plan for pursuing the opportunity, and a presentation to a panel of faculty, venture capitalists, and entrepreneurs.

- ***STRAMGT 357: Strategy in Entrepreneurial Ventures.*** Focuses on the strategic challenges of entrepreneurial companies. It explores the key managerial issues that entrepreneurial companies face in their decision to pursue opportunities. The course emphasizes strategic decision making at the level of both the entrepreneur and the entrepreneurial company. It includes a section on the financing of entrepreneurial companies by venture capitalists and other investors. The course uses both domestic and international case studies, as well as some exercises. It also includes the "Entrepreneurship Game," which simulates the process of starting a company, from the identification of an opportunity all the way up to the financing of a company

- ***STRAMGT 370: Strategy and Action in the Information Processing Industry.*** Studies the development of competitive strategies by firms in a highly interrelated industry by examining case studies, all set in the information processing industry of the 1990s and 2000s. At various times, analysis is at the firm level (development of corporate strategies), at the intra-firm level (how were strategies developed and implemented), at the industry-segment level (e.g., semiconductors or personal computing), and at the inter-industry-segment level (e.g., interplay of semiconductors and personal computing).

- ***STRAMGT 371: Strategic Management of Technology and Innovation.*** Focuses on the strategic management of technology-based innovation in the firm. The purpose is to provide students with concepts, frameworks, and experiences that are useful for taking part in the management of innovative processes in the firm. The course examines how such processes may change the strategic direction of the firm and how they can be managed effectively. Specific topics include assessing the innovative capabilities of the firm, managing the corporate R&D function, managing the interfaces between functional groups in the development process, managing the new business development function in the firm, understanding and managing technical entrepreneurs, building technology-based distinctive competencies and competitive advantages, technological leadership versus "followership" in competitive strategy, institutionalizing innovation, and attracting and keeping corporate entrepreneurs

- ***STRAMGT 569: Social Entrepreneurship.*** This course is about using entrepreneurial skills to craft innovative responses to social problems. Entrepreneurs are particularly good at recognizing opportunities, exploring innovative approaches, mobilizing resources, managing risks, and building viable enterprises. These skills are just as valuable in the social sector as they are in business. If anything, they are even more urgently needed in the social sector. The solutions to social problems have been surprisingly unaffected by larger economic trends; neither the economic boom of the 90s or the current recession have altered the need for new ways to effect change: A more micro strategy, involving specific individual entrepreneurial efforts offers some of the most promising ways for creating deep systemic changes.

University of Pennsylvania – Wharton School (#3)

http://www.wep.wharton.upenn.edu/Teaching/teaching_overview.html

At the Wharton School, entrepreneurship is one of four sub-fields of scholarship within the Management Department. Course work and degrees in entrepreneurial management are offered at the Undergraduate, MBA and Ph.D. levels. At the *undergraduate level*, entrepreneurship is offered as a Secondary Concentration and is intended to complement course work completed in a primary concentration by providing a diverse set of options for students to hone their entrepreneurial skills. Students must have completed all business fundamental courses at Wharton before beginning this course of study. Entrepreneurship cannot be a student's only concentration at Wharton; students must have declared a primary concentration. Entrepreneurial Management is commonly coupled with Finance, Marketing, or Strategic Management.

- **Entrepreneurship Course Descriptions**

  - ***MGMT 230 (or MGMT 235 for M&T students): Entrepreneurial Decision Making.*** All students are required to take the foundation entrepreneurial course in which students write a full business plan, and focus on opportunity assessment and feasibility analysis. It is an entry-level course and is a prerequisite for every other course in the entrepreneurship curriculum. The course steps the student through each of the major decisions faced in designing a venture – applying tools from other courses, seeing how these tools translate to new ventures, and learning some additional tools that are specific to new ventures. Please note that other departments at Wharton (e.g., Marketing, Legal

Studies, Operations and Information Management) also offer a number of courses that focus on entrepreneurial issues.

- ***MGMT 231:*** **Entrepreneurship: Implementation and Operation.** The sequel to MGMT 230, this course focuses on implementation, deal structure, and operations with a special emphasis on the psychological and sociological ramifications of entrepreneurial pursuit. The purpose is to prepare students for an early entry into entrepreneurship.

- ***MGMT 254: Independent Study Projects.*** Students who wish to pursue an independent research project may do so for credit under the guidance and approval of a faculty member. In given semesters the Goergen Entrepreneurial Management Program, in conjunction with the Sol C. Snider Entrepreneurial Research Center, may post specific research topics that are of interest to participating faculty members and research fellows. Students who would like to pursue these research topics for independent study credit may do so under the guidance and approval of the noted faculty member.

- ***MGMT 801: Entrepreneurship and Venture Initiation.*** The purpose of this course is to explore the many dimensions of new venture creation and growth and to foster innovation and new business formations in independent and corporate settings. The course is concerned with content and process questions as well as with formulation and implementation issues that relate to conceptualizing, developing, and managing successful new ventures.

- ***MGMT 802: Innovation and Entrepreneurship.*** This mini-course will expose you to a mix of approaches and techniques that promote innovation and entrepreneurial behavior in organizations. It explores how patterns of change in technologies and markets create both opportunities and threats for established and new firms.

- ***MGMT 806: Implementing Entrepreneurial Businesses.*** This is an advanced course in entrepreneurship, which focuses on implementation of business start-ups.

- ***FNCE 250: Venture Capital & Private Equity.*** This course surveys the private equity industry, with an emphasis on the financial and economic tools useful for private equity and venture capital investing. At the conclusion of the course, students should understand deal structure and valuation for a broad range of private equity transactions.

- ***FNCE 750: Venture Capital & Private Equity***. FNCE 250 for graduate students.

- ***MKTG 781: Entrepreneurial Marketing.*** Focuses on the key marketing concepts and methods relevant for entrepreneurs. In particular, it covers the marketing elements of new venture initiation (including a business plan), as well as marketing decisions for small and growing organizations. Topics include product/service design, assessment of market potential, creation of successful distribution relationships, and new product pricing. In contrast to the product development course, the emphasis here is on a new startup business rather than a new offering from an existing business. Topics covered in this course also include low-budget or no-budget market research, successful strategic alternatives for small business, alternatives to high-cost advertising (e.g., direct marketing, alternative media, and personal selling), segmentation, and targeted marketing. Students will prepare a marketing plan for an entrepreneurial organization of their choice, possibly for a new venture they are considering. Format: Case, lecture, class discussions.

Harvard University – Harvard Business School (#4)

http://www.hbs.edu/mba/experience/learn/entrepreneurship/index.html

During the first year of the Harvard Business School MBA Program, all students pursue the same required curriculum – a broad set of courses from each of the key disciplines. The Entrepreneurial Management unit offers one course – The Entrepreneurial Manager (described below) – as part of this first year required curriculum. During the second year, students choose from a wide range of courses from the elective curriculum offered by each of the academic units at the Business School. The Entrepreneurial Management unit offers 24 electives (some of which are half courses) that span a range of industries, functions and issues. Examples include: courses in Entrepreneurial Finance; Entrepreneurship, Creativity and Organization; Real Property Asset Management; Venture Capital and Private Equity; Entrepreneurial Marketing; and Legal Aspects of Entrepreneurship. In addition, faculty members in the Entrepreneurial Management Unit supervise MBA students in field studies and offer doctoral programs.

- **Entrepreneurship Course Descriptions**
  - ***The Entrepreneurial Manager.*** This first year required course in entrepreneurship is offered during the winter / spring. The course teaches students how to:
    - Identify potentially valuable opportunities
    - Obtain the resources necessary to pursue an opportunity and to create an entrepreneurial organization
    - Manage the entrepreneurial organization once it has been established
    - Grow the business into a sustainable enterprise
    - Create and harvest value for the organization's stakeholders

The following list indicates the elective entrepreneurial courses offered in the second year of the MBA. This link provides a chart that will link to detailed course descriptions.
http://www.hbs.edu/units/em/Pages/ec.html

EC Course listings at HBS

Business Leadership in the Social Sector
The Coming of Managerial Capitalism: The United States
Entrepreneurial Finance
Entrepreneurial Marketing
Entrepreneurship in The Social Sector
Field Study Seminar: Women Building Business
Half Course: Entrepreneurial Management in a Turnaround Environment
Half Course: Field Study Seminar in Entrepreneurial Management in a Turnaround Environment
Half Course: Entrepreneurship in Education Reform
Half Course: Field Study Seminar in Managing Technology Ventures
Half Course: Managing for Creativity
Half Course: Negotiating Ventures
International Entrepreneurial Finance
Legal Aspects of Entrepreneurship
Management of the Family Business
Managing Networked Businesses
Real Property Asset Management
Venture Capital and Private Equity

University of Southern California (#5)

http://www.marshall.usc.edu/web/Lloydgreif.cfm?doc_id=1034

Undergraduate and graduate level students can specialize in entrepreneurship or simply take one or more courses. The Lloyd Greif Center builds on the base of business knowledge students have acquired in their Business School courses by focusing on the pre-start-up, start-up and early growth of new ventures. Students will learn how to gather the resources necessary to start and grow an entrepreneurial company. Classes are team taught by full-time entrepreneur professors who bring a variety of entrepreneurial experiences and academic expertise to the classroom as well as alumni, members of the advisory council, and other guest speakers. Whether in a full-class lecture setting, smaller workshops and seminars, fireside chats, or networking events, students will have multiple opportunities to meet and learn from faculty, advisors, alumni, and guest entrepreneurs.

- **Entrepreneurship Graduate Course Descriptions**
  - **BAEP 551: Introduction to New Ventures.** An introduction/overview of the entire entrepreneurship process. Starting with the Entrepreneur, Creativity, an Idea and a Concept, we experience the Feasibility Analysis and Business Plan writing process. Distribution, selling and managing are covered from the view of the new venture. The Money Module explores cash flow analysis, venture capital and other sources of funds. Students will gain an understanding of the entire entrepreneurial process, which may lead them into the Venture Management Emphasis, or just learn an appreciation of how to deal with entrepreneurs and new ventures. (Open to **all** University Masters level students; offered every semester.)
  - **BAEP 552: Feasibility Analysis.** Focuses on the techniques used to create and evaluate new concepts and new business opportunities. Students study the process of Feasibility Analysis of business ventures from the time of the generation of the concept through critical concept analysis, opportunity screening and pre-feasibility analysis, to the development of the written study. Students prepare a feasibility study as a term project and may use this study as the initial step in writing the Business Plan required in BAEP 554. (Open only to students who have completed, or are concurrently taking, BAEP 551.)
  - **BAEP 553: CEO/Founder Cases in New Venture Management.** You have started a new business; you have bought an early-stage company; you have inherited the family enterprise; or you are a key executive in one of these companies. As the new owner/president or key executive, how do you build a solid foundation for your new company's long-term success? This course integrates your knowledge of the functional areas of entrepreneurial business development. Its central themes are the impact and imprint of the owner/president on the company and the development of trans-functional systems that will lead to sustainable growth. Readings, discussions and weekly guest entrepreneurs will explore critical issues from ethics and personal management styles to the integration of a continuous strategic planning process. (Open to all Masters students.)
  - **BAEP 554: Business Plan.** Considered the culmination of BAEP 551 and 552. You will continue to research and refine your Feasibility Study and write a Business Plan to launch your venture. The Lloyd Greif Center will provide expert resources to critique and assist in the completion of a plan that is soon to be ready for evaluation by the market place. The goal is to prepare you for starting and running successful new or emerging enterprises. (Open only to students who have completed BAEP 552.)
  - **BAEP 555: Management of Rapidly Growing Ventures.** As owner/president or key executive in an emerging growth company, you are challenged by constant change. As your sales grow, so do the threats to your company's future success. What can you do to take your company to the next level and position it for enduring greatness? What changes are necessary in strategic focus, culture, and management style? This course focuses on the continuing development of your entrepreneurial perspective and skills,

and on developing management and control systems in each critical area of the business, from customers to tax planning.

- **BAEP 556: Technology Feasibility for High Tech Ventures.** Gives students the critical thinking and analytical skills they need to evaluate, value, and manage technology as intellectual property. Students will learn the technology commercialization process, use data mining and assessment techniques for patent databases, and study the unique business issues facing high technology start-ups. This is an e-team course, which means that students will either use their own technology concepts or work on technical teams with scientists and engineers.

- **BAEP 557: Technology Commercialization.** Students will learn how to recognize and screen technology opportunities in diverse areas, from information systems to telecommunications, and biotechnology. Students will learn the ins and outs of intellectual property acquisition, creation, and protection, and how to license technology that others have patented and license your own technology to others to create diverse revenue streams. The unique issues related to high technology start-ups will be covered.

- **BAEP 599: Investing in New Ventures.** Focuses on the entrepreneurial skill set applied to finding and selecting new venture investment opportunities. The course is taught from the business plan reader's point of view and focuses on building a relationship with the principals, structuring the investment, adding value as a non-executive manager, and realizing the value of that investment. Whether you desire to be a Venture Capitalist or an Organizational Entrepreneur, the issues of creation of the new enterprise are complex and require the integration of various skills and the adoption of them to each individual case. This is a case-based course. The reading, assessment and critiquing of business proposals, feasibility plans, or formal business plans, along with proposed structural solutions constitute a large measure of the class's activities.

- **Entrepreneurship Undergraduate Course Descriptions for Entrepreneur Majors:** The national recognized Entrepreneur Majors Program offers students the most comprehensive, challenging, and exciting course of study available. To complete the senior option, students take a 16-unit, lock-step program of four, four-unit courses, BAEP 451 & 452 in the fall semester and BAEP 453& 454 in the spring semester.

  - **BAEP 451: Introduction to New Ventures.** Introduces students to the basic concepts and skills required to understand the nature of entrepreneurship, recognize opportunity, and assemble the resources to start a new business.

  - **BAEP 452: Feasibility Analysis.** This is a project course that guides students through the development of a new business concept and the preparation of a feasibility study to analyze the potential for market acceptance of the concept.

  - **BAEP 453: Starting and Growing the New Venture.** Takes the student from a feasible concept to issues related to starting and growing a new venture.

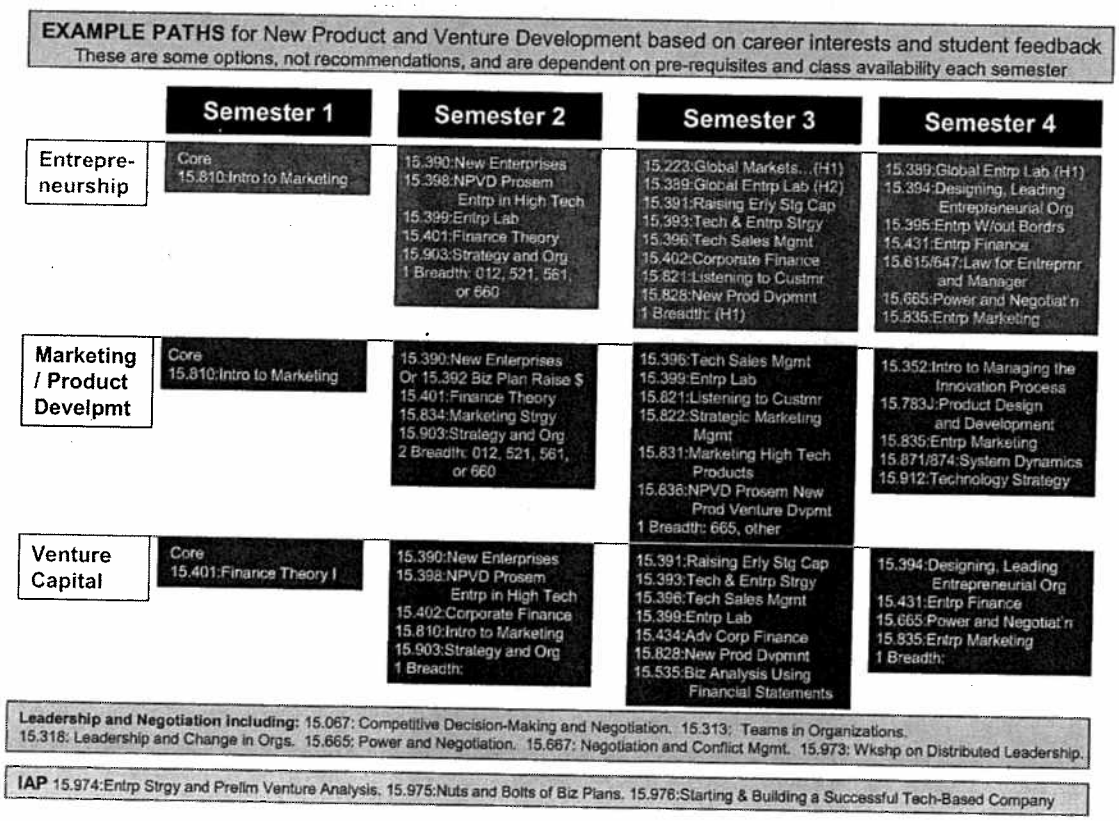
  - **BAEP 454: The Business Plan.** Gives students the opportunity to study the elements of a successful business plan and to put that knowledge to work in creating a comprehensive business plan for a new venture.

- **Undergraduate Entrepreneurship Courses for Non-Entrepreneur Majors:** The Lloyd Greif Center offers three courses for non-business majors. They are four-unit, semester courses designed to introduce students to the field of entrepreneurship and give them an entrepreneurial experience. The first two are BAEP 451 and 452, described above. The third is: BAUD 301: Technical Entrepreneurship.

Massachusetts Institute of Technology (#6)

http://entrepreneurship.mit.edu/entre_courses.php

- **Entrepreneurship Graduate Course Descriptions** (undergraduates may enroll in certain courses)
    - **New Product and Venture Development (NPVD) Track.** MBA students at the MIT Sloan School of Management concentrate their studies in one of seven career-management "tracks." Each track features a series of interdisciplinary courses that endow students with specific skills and insights. The New Product and Venture Development (NPVD) track addresses marketing, sales, strategy, finance, new product development, and other disciplines required to guide the creation and growth of new high-tech ventures. All of our world-class entrepreneurship courses live in the NPVD track, which emphasizes hands-on leadership for entrepreneurs and new product managers in innovative firms. The MIT Entrepreneurship Center plays a critical role in supporting the NPVD track through coursework (which we promote extensively throughout MIT), faculty recruitment, professional seminars, cooperation with student groups, and co-curricular activities.



    - **15.223: Global Markets, National Policies and the Competitive Advantages of Firms.** Examines the opportunities and risks firms face in today's global world. The course provides conceptual tools for analyzing how governments and social institutions influence economic competition among firms in different national settings. Public policies and institutions that shape competitive outcomes are examined through cases and

analytical readings on different companies and industries operating in both developed and emerging markets.

- **15.369: Corporate Entrepreneurship Strategies for Technology and New Business Development.** Explores strategic and organizational issues in the development of new technologies and new business areas for existing firms. Issues are examined from the perspectives of both large corporations and emerging, technology-based enterprises. We discuss linkages between internal and external sources of technology in major new business development and examine internal entrepreneurial ventures, alliances (especially between large and new companies), joint ventures, acquisitions, corporate venture capital investments, and contract product development as alternative approaches. Through lectures by faculty and outside speakers, the course offers a brief overview of issues faced in developing technology strategies and plans.

- **15.389 H2-IAP-HI: Global Entrepreneurship Lab.** Enables teams of engineering, science, and management students to work with the top management of international high tech start-ups and gain hands-on experience in starting and running a new enterprise outside the United States. Lectures open students' eyes to the issues and policies that affect the climate for innovation and start-up success. Students spend 2-3 weeks during the Independent Activities Period (IAP) at the company site and then return for the course wrap-up.

- **15.390 Section A: New Enterprises.** In this course, students not only study entrepreneurs, they become entrepreneurs. Students will, in the course of the semester, create a technology-based enterprise and all the essential parts of a business plan and investor pitch. Students will work in teams to launch companies, working through issues of market analysis, technology viability assessment, competitive positioning, team building, product life cycle planning, marketing strategy, sales channel analysis, and a strong emphasis on the entrepreneur as a sales person. Students map the practical steps of organization and legal issues associated with forming a brand new company, and address the strategic considerations for creating companies that can quickly define and dominate a new category or disruptive technology. The course features a prestigious line-up of guest speakers and hands-on mentors who have deep and recent experience starting and building companies.

- **15.390 Section B: New Enterprises.** This core course, first taught in 1961 by Richard S. Morse, covers the process of identifying and quantifying market opportunities, then conceptualizing, planning, and starting a new, technology-based enterprise. Topics include opportunity assessment, value propositions, the entrepreneur, legal issues, entrepreneurial ethics, the business plan, the founding team, and seeking funds. Each student develops a detailed business plan for a start-up. This course is intended for those who want to start their own businesses, further develop an existing business, be a member of the management team in a new enterprise, or understand better the entrepreneur and the entrepreneurial process.

- **15.391: Raising Early Stage Capital.** Prepares entrepreneurs to optimize the use of outside advisors and to negotiate effective long-term relationships with sources of funding, including venture capital. Students interact with venture capitalists and other professionals throughout the semester.

- **15.392: Business Plans that Raise Money.** Focuses on the business plan as a key part of the process of starting a new venture. The course examines what is the business plan; what it contains; what is included in specific sections; how it is developed and written; what are its uses; whether different versions are acceptable; how to analyze and evaluate the business plan; and what investors look for in a business plan. Students will learn about the development of a business plan by pursuing their own business ideas or by contributing to the evolution of other student ideas. In conjunction with the IAP

Entrepreneurship Series, this subject is highly recommended for students who intend to participate in the MIT $50K Entrepreneurship Competition.

- **15.393: Technology and Entrepreneurial Strategy.** Focuses on building a technology strategy in start-up organizations in new industries. It outlines tools for formulating and evaluating technology strategy in entrepreneurial start-ups, including an introduction to models of technological evolution, models of new-firm strategy development, and models of organizational dynamics and innovation. Topics covered include: making money from innovation; competition between technologies; strategies for competing against established incumbents; organization of R&D; technology portfolio development; and theories of diffusion and adoption. This course is taught using a combination of readings and case studies, covering much of the same conceptual material as 15.912 but with an emphasis on entrepreneurial start-ups. Case study material is mainly from start-ups and fast-growing firms.

- **15.394: Designing and Leading the Entrepreneurial Organization.** To build a high-growth, sustainable firm, an entrepreneur must know how to locate and recruit talented people as well as manage and retain them. This course focuses on building, running, and growing an organization. We examine three central themes: how to think analytically about designing organizational systems; how leaders, especially founders, play a critical role in shaping an organization's culture; and how to build a successful organization for the long term. Through a series of cases, lectures and readings, we address the principles of organizational architecture, group behavior and performance, interpersonal influence, leadership, and motivation in entrepreneurial settings. Students develop competencies in organizational design, human resources management, and organizational behavior in the context of a new, small firm.

- **15.395: Entrepreneurship / Venture Capital without Borders.** Examines the opportunities and problems for entrepreneurs outside the US, particularly in emerging markets. Students gain understanding of the linkage between business environment and new business creation and learn the analytics of venture finance. In addition to discussing the range of global entrepreneurial situations, student groups pick one particular market opportunity on which to focus and develop an outline business plan. Classroom interactions are based primarily on case studies.

- **15.396: Special Seminar in Entrepreneurship: Technology Sales and Sales Management.** Nothing happens until a sale is made. That simple point underlines the critical importance of sales to the entrepreneur. Almost every business plan "assumes" a certain amount of sales, but that assumption is the tipping point. Without sales, the entire business model is an exercise in frustration. The entrepreneur must not only understand the sales process, but also embrace the fact that the ability to sell is the single most critical success factor of any new enterprise. This course does not approach sales from the vaunted perspective of 'strategy.' It gets right into the very practical and tactical ins and outs of how to sell technical products to a sophisticated marketplace. Then it moves into the more complex subject of how to build and manage a sales force and covers subjects such as building compensation systems for a sales force, assigning territories, resolving disputes, and dealing with channel conflicts.

- **15.398: Proseminar NPVD – Entrepreneurs in High Technology: IT, Energy and Biotechnology.** The Internet is comprised of content providers, search engines, portals, e-commerce sites, and infrastructure providers. In the year 2000, $100 billion of new venture funds were raised, of which 60% went to Internet and Internet-related companies. Subject examines parts of the Internet industry (search engines, portals, broadband, content, infrastructure, etc.) and hosts a guest entrepreneur who is defining that segment. Case studies are used where available and helpful. Students have the opportunity to meet and interact with the speakers.

- **15.399: Entrepreneurship Lab.** Teams of science, engineering, and management students participate actively one day a week on-site with the top management of high tech start-ups in order to gain hands-on experience in starting and running a new venture. Student projects focus on one urgent aspect of the start-up such as the choice of an initial target market, the value proposition for customers in the first market, or the specific sales approach. Student style supper is served to promote networking. High-tech companies are recruited from the Boston/Route 128 region and beyond. More than 350 startups have participated in the Entrepreneurship Lab program. The supply of participating companies offering internships exceeds student team demand by a factor of 3:1 or more.

- **15.431: Entrepreneurial Finance.** Examines the elements of entrepreneurial finance, focusing on technology-based start-up ventures, and the early stages of company development. The course addresses key questions that challenge all entrepreneurs: how much money can and should be raised; when should it be raised and from whom; what is a reasonable valuation of the company; and how should funding be structured. The course aims to prepare students for these decisions, both as entrepreneurs and venture capitalists.

- **15.615/647: Law for the Entrepreneur and Manager.** This course evolved from the original course, "Manager's Legal Function," to its new name, more accurately reflecting the emphasis on entrepreneurship. The first half covers basic business law and follows a start-up from the "breakaway" from an established firm through the organization and financing of the new company. In the second half, the course covers an array of law-sensitive issues important to all firms, including IP rights, selling a business and M&A, employment law, business disputes, and bankruptcy. Managers periodically face law-sensitive issues and transactions crucial to their careers and their companies, and entrepreneurs typically face these early on. Good managers have an appreciation of the strategic implications of business law, skill in using professional legal services, and sensitivity to the implications of law for corporate accountability, ethics, and their role as leaders. 15.615 is the full-semester version. 15.647 is the first half (H1) only.

- **15.660: Strategic Human Resources Management.** Widespread restructuring has forced firms to rethink relationships with employees. Subject introduces general managers to the new human resources challenges they are likely to confront. Topics include: compensation systems; high-performance human resource systems; training programs; negotiation strategy and tactics; downsizing; equal employment opportunity laws; workforce diversity, and union-management relationships.

- **15.835: ProSeminar in New Product and Venture Development.** Provides an overview and a feel for what is involved in new product development within a larger organization, as well as in start-up firms. How does an idea or an invention become a successful innovation in the marketplace? Distinguished guest speakers focus on specific aspects of this process: facing "the fuzzy front end"; championing an idea within an organization; sustaining the entrepreneurial spirit; combating growing pains; designing the product launch plan; overcoming communication challenges; and using creative marketing techniques.

- **15.968: Special Seminar in Management: Building a Biomedical Business.** Examines the process and problems of founding and growing a new biomedical business. It will also explore scientific advances and the commercial potential of a number of emerging areas of biomedical science and technology, through a series of technology lectures. The course is designed to focus on the two stages of a biomedical business – founding and growth. It also examines the unique aspects of the institutional context in which biomedical firms are founded. The course therefore has three sections:

    - Idea Sources & Institutional Settings: Biomedical firms are typically created as the result of research in academic and governmental laboratories. However, the

culture and practices of these institutions create a number of challenges in the technology transfer process that influence commercialization.

- Idea Assessment & Founding: Many scientific ideas do not form the basis of good businesses. Here we examine the nature of scientific uncertainty as it influences commercialization, the nature of scientific versus commercial evidence, and how to assess scientific ideas through a business lens. We examine how to develop business strategies to attract financial resources and transform them into successful businesses.

- Idea Development & Growth: We will examine how successful and unsuccessful biomedical firms have created the strategic, organizational and scientific flexibility needed to translate science into business. We will focus in particular on balancing science with development, the development of additional manufacturing assets, and the use of alliances and partnerships.

- **15.971/MAS 967: Developmental Entrepreneurship.** A 6-unit Fall Semester seminar on founding, financing, and building entrepreneurial ventures in developing nations and emerging regions. We challenge students to craft enduring and economically viable solutions to problems faced by at least one billion people worldwide. Students survey developmental entrepreneurship via case examples of both successful and failed businesses and generally grapple with deploying and diffusing products and services through entrepreneurial action. By drawing on live and historical cases, especially from South Asia, Africa, Latin America as well as Eastern Europe, China, and other developing regions\, the course covers the broad spectrum of challenges and opportunities facing developmental entrepreneurs. Finally, we explore a range of established and emerging business models as well as new business opportunities enabled by technologies in the works in MIT labs and beyond.

- **15.974: Special Seminar in Management: Preliminary Venture Analysis and Personal Entrepreneurial Strategy.** This is an opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum. Are you entrepreneurial and interested in strengthening the skills needed in business start-ups? In this course, you will gain insight into entrepreneurial people and how entrepreneurial you are. As part of this process, you will develop your Personal Entrepreneurial Career Strategy. Equally important, you will learn more about the process of business development and will perform a Preliminary Venture Analysis to determine if a business idea can be built into a high-potential business opportunity. This course is a solid starting point for entering the MIT $50K Entrepreneurship Competition and/or for registering for courses in entrepreneurship at Sloan.

- **15.975: Seminar in Management: The Nuts and Bolts of Business Plans.** Open to undergraduates as well as graduate students. Explore the nuts and bolts of preparing a business plan, from the executive summary, through the full text and financials, to the PowerPoint presentation in front of potential investors. This series is recommended for people interested in starting up and/or improving a new business. Undergraduate and graduate students planning to enter the MIT $50K Entrepreneurship Competition in February should find the series particularly useful. Students taking the course for credit will submit either a 2-3 page executive summary for a business plan (which can be the one they submit for the MIT $50K) or they may write a 3- to 5-page critique of a business plan to be provided. Speakers will include entrepreneurs, venture capitalists, other financing sources, and experts. Readings are assigned from texts and excerpts from actual business plans of successful companies. Attendance at each session is required unless previously arranged.

- **15.976: Seminar in Management: Starting and Building a Successful High Tech Venture.** Opportunity for group study by graduate students on current topics related to management not otherwise included in curriculum. Open to undergraduates as well as

graduate students. First taught in 1981 by the MIT alumni of the MIT Enterprise Forum, this course addresses the issues faced by entrepreneurs who wish to transform their venture from an idea into a fast-growing company. In five class sessions, we will present strategies for long-term growth and sustainable business development. Issues such as general management, team formation and leadership, growth capital, business infrastructure and outside advisors will be covered in the context of a start-up company. Guest lecturers – successful entrepreneurs, venture capitalists, and service providers – will discuss their experiences. The final class will cover MIT resources available to students starting companies. Course work includes readings and a 10-page written assignment.

- **Marketing: An Introduction for Entrepreneurs.** This not-for-credit IAP activity is intended for non-Sloan graduate students. Advance sign-up is required. To start a business or to become involved in one, you will need to understand marketing. This course introduces definitions and basic concepts of marketing: customers, market segment, marketing strategy, and the marketing mix (product, price, distribution, communication).

- **Technology and Competitive Strategy (Previously Offered).** Technology and Competitive Strategy deals with the strategic issues posed by future technologies, still in the lab but which have the potential for great impact. Lessons are drawn and applied from presently emerging technologies. The course also considers the question of realizing optimal structures at the scale of universities and nations, for future innovation. Technology and Competitive Strategy begins over IAP and continues in the spring, alternating venues between MIT and Harvard Business School.

- **Entrepreneurship Undergraduate Course Descriptions**

  - **SEM089&095: Starting-Up New Technology-Based Business Enterprises at MIT.** This seminar series includes discussions, talks, project briefings, start-up presentations and real and virtual field trips during both terms, plus assigned and volunteered writings and oral presentations. The basis for study includes the case histories of selected examples of successful MIT spin-off companies, as well as some MIT start-ups in-the-works to which students have various levels of access. A number of not-successful start-ups and visits with their founders is also scheduled, and is useful in the study of entrepreneurial behavior and especially with regard to team building and maintenance.

- **Interdisciplinary entrepreneurship courses.** Undergraduate and graduate students may take advantage of the MIT policy allowing anyone to take any subject, regardless of major, assuming appropriate prerequisites, instructor permission, and space availability. Thus, Engineering and Science students may take targeted business subjects, and MIT Sloan students may take certain Engineering or Media Lab subjects.

University of Texas – Austin (#7)

http://www.bus.utexas.edu/research/hkcenter/

- **Entrepreneurship Course Descriptions:** The core graduate curriculum includes six courses, any five of which constitute a specialization in entrepreneurship: http://texasmba.bus.utexas.edu/students/academics/special/specmgent.asp#what

  - **Entrepreneurial Management.** Provides an overview of the life cycle of an entrepreneurial firm. Students specializing in entrepreneurship are encouraged to take this course during the second semester of their first year.

- **Opportunity Identification and Analysis.** Teaches students how to identify and analyze compelling business opportunities.

- **Gathering Resources and Launch.** Teaches how to turn a compelling idea into a real business. Students also gain "hands-on" experience working with real ventures in launch mode at the Austin Technology Incubator.

- **Managing Entrepreneurial Growth.** Maps out what it takes to grow a fledgling business to its full potential.

- **Harvest, Finance and Negotiation.** Charts the stages of renewal and harvest in a mature business with a focus on value drivers and business valuation.

- **MOOT CORP®: New Venture Creation.** Involves creating and presenting a plan for a new venture. In the Fall Semester, it culminates in the MOOT CORP® Competition, and the winner receives a $100,000 investment to facilitate launching the venture.

- **Elective Courses.** The curriculum provides a wide variety of elective offerings including:

  - Advanced Venture Development Practicum
  - Corporate Governance
  - Enterprise of Technology: Mind to Market
  - Entrepreneurial Finance
  - High Technology Entrepreneurship
  - Managing and Marketing in the Global Arena
  - Opportunity Creation
  - Small Business Finance
  - Venture Capital Fellows Practicum

- **Private Equity Finance Program:** Offered through the Hicks, Muse, Tate & Furst Center for Private Equity Finance, this curriculum is designed to help MBA students prepare for careers that require an in-depth understanding of the private equity market. In addition to being multidisciplinary, the curriculum covers the broad spectrum of private equity investments, including early- and later-stage venture investing, investing in established private firms, buyouts, financial restructuring of distressed firms, and private equity financing by public firms. Students interested in a particular segment of the private equity market, such as venture capital, have the opportunity, in conjunction with the general private equity curriculum, to focus on that area by taking specialized courses in finance or entrepreneurship or by designing customized independent study courses with individual faculty. A representative course sequence for students in the Private Equity Finance Program is as follows:

  - First Year: Fall Semester

    - BA380S Managerial Economics
    - BA384T Financial Accounting
    - BA386T Statistics
    - MIS380N.1 Information Technology Management
    - BA385T Financial Management

  - Spring Semester

    - BA380N Operations Management
    - BA381T Marketing Management
    - ACC380K.7 Financial Statement Analysis
    - FIN397.1 Investment Theory and Practice
    - FIN395.5 Advanced Topics in Corporate Finance

- Second Year: Fall Semester
  - FIN394.2 Financial Strategies (Private Equity Finance) (http://www.bus.utexas.edu/hmtfcenter/Syllabus.pdf)
  - BA388T Strategic Management
  - MAN385.23 Entrepreneurial Process
  - MAN383.20 The Art and Science of Negotiation
  - Elective
- Spring Semester
  - FIN394.4 Financial Management of Small and Middle-Sized Enterprises
  - MAN389T Managing People and Organizations
  - Electives (3)

University of California – Los Angeles (#8)

http://www.anderson.ucla.edu/research/esc/MBAs/MBACurriculum.html

- **Entrepreneurship Course Descriptions:** The basic set of course offerings build upon the MBA program and the required courses that constitute the first year core. These courses were created to provide knowledge and perspective about entrepreneurial processes. A carefully articulated internship and appropriately selected field study, designed to complement student interest, complete the suggested course of study. The following are elective courses with entrepreneurial content.

Corporate Entrepreneurship	Mgmt 295C	Study the nature of entrepreneurship and the effective implementation of entrepreneurial strategies in large industrial enterprises. The course focuses primarily on managerial effects aimed at the identification, development, and exploitation of technical and organizational innovations, the management of new product or process developments, and effective new venture management in a corporate context. Prerequisite: consent of instructor.	Schollhammer
Elements of Economic Organizations: Doing Deals	**Mgmt 209**	This seminar is an introduction to the legal and economic framework of various agreements between parties to business transactions. Our intent is to understand the structure of deals in substantive areas of business practice through an analysis of the terms of agreements, key outcomes sought by each party (or parties), and discussion with one or more of the principals, agents, or advisors involved in the deal. Prerequisite: consent of instructor.	Osborne Bill Klein
Entrepreneurship & Venture Initiation	**Mgmt 295A**	Explore entrepreneurship, particularly the formation and operation of new business ventures. Cover significant aspects of evaluating new business opportunities and starting a new business. Analyze successful entrepreneurs, identify and evaluate new venture opportunities, development new venture financing, examine legal and tax considerations, and develop appropriate entry and exit strategies. Prerequisite: consent of instructor.	Osborne Schollhammer
Entrepreneurship & Business Plan Development	**Mgmt 295D**	Explore the factors involved in turning an idea into a serious business venture. Research and analyze a new business opportunity of choice and produce a business plan for the venture. Create the business venture, develop a critical path, structure a proforma, analyze financial statements, and look at cash flow vs. profit. Prerequisite: consent of instructor.	Foster Osborne
Financing the Emerging Enterprise	**Mgmt 231E**	This course emphasizes the financial, control, and investment issues confronting rapidly growing companies in entrepreneurial settings. The main objective of the course is to consider and select financing vehicles which may be appropriate to securing organizations' money requirements. Prerequisites: second-year standing and satisfactory completion of courses 403, 408, and 230.	Cockrum
Managing	**Mgmt**	Explore issues and problems facing the entrepreneur in daily business	Yost

Entrepreneurial Operations	**240E**	operation. Topics include the impact of pre-startup decisions, problems encountered during startup, operating problems created by rapid growth, and surviving in an adverse environment. Forecast the impact of acquiring, developing. and changing process and product technology in an entrepreneurial firm.	
Managing the Stages of Entrepreneurial Growth	**Mgmt 298D**	Examine issues and problems involved in developing and managing entrepreneurial organizations. Evaluate the factors that make an organization effective at each stage of growth. Discuss the nature and functioning of key management systems that are primary tools in managing an entrepreneurial enterprise: strategic planning, organizational design, management development, control systems and leadership.	Flamholtz Randle
Small Business Management	**Mgmt 295B**	Explore crucial aspects in managing small business enterprises. Emphasis on the identification and analysis of characteristic operating problems of small firms and the application of appropriate methods or techniques for their solution. Prerequisite: consent of instructor.	G. Klein
Issues in Operating a Family Business and Closely Held Firms	**Mgmt 298D**	Explores strategic, operating, financial, and psychological issues associated with running a family- and/or privately-held firm. Topics include succession planning, corporate structure, tax and legal issues, family vs. non-family employees, shareholder issues, and exit strategies.	One section in alternate years.
Using Microcomputers for Strategic Information	**Mgmt 413**	Personal computing in support of strategic analysis, decision making, and management communication. Case situations in areas such as financial analysis, personal information management, small business planning, and organizational design are presented. Use of personal productivity tools and network resources to enhance organizational effectiveness by furnishing quantitative and qualitative information. Emphasis on hands-on exercises.	Geis
Fieldwork in Organizations (Academic Internship)	**Mgmt 454**	Supervised, unpaid practical experience or field work in an entrepreneurial or growing enterprise as an intern. Execute predetermined assignment(s) pursuant to a defined program of study, which may include formal classwork. May not be repeated for credit. Faculty advisor required. Prerequisites: completion of two quarters of the MBA Program and consent of the supervising faculty and director of the MBA Program.	
Fieldwork in Investment Mgmt (Student Investment Fund)	**Mgmt 457**	Selected students employ academic theories learned in previous classes to practical experience by managing portfolio started with donated funds. Mirrors situations experienced by typical money management firms. Students tackle investment strategy, asset allocation, security analysis, and organizational issues. Prerequisite: consent of instructor.	
Management Field Study	**Mgmt 444A-444B**	Must be taken during second year in two consecutive quarters or as eight units in one quarter. Supervised study of an organization, including establishment of client-consultant relationships, identification of problems or strategic questions, design of study, collection of analysis of data, development and reporting of implementable recommendations.	
Research in Management (Independent Study)	**Mgmt 596**	Directed individual study or research, on a topic of the student's choosing. May be repeated for credit. Faculty advisor required. Venture Fellows program participants are required to write a case study under this course elective. Prerequisite: consent of MBA program director.	

Columbia University (#9)

http://www.gsb.columbia.edu/entprog/curriculum/courses.htm

- **Entrepreneurship Course Descriptions:** The program is structured to emphasize individual initiative and identifying, valuing and capturing opportunity. While there are distinguishing features of entrepreneurship, virtually all business students will encounter these challenges in some form, whether as entrepreneurs, consultants, financiers, or managers of firms. Accordingly, the school offers a strong background for *four career paths:*

- **Entrepreneurship in New Ventures.** Many students interested in entrepreneurship seek a stimulating career path organized around founding or managing new ventures. Because new ventures demand a strong foundation in key elements of business — financial organization, negotiation, management and product development — their management requires a strong background in finance and accounting as well as in marketing and management. A great idea is simply not enough — it must be coupled with a solid business model if the business is to succeed. While many students choose to pursue an entrepreneurial idea immediately as a new venture or as part of an existing family business, still others choose to first gain experience in larger business organizations, consulting firms or investment banks.

- **Entrepreneurship in Large Organizations.** Because innovation in products and services is a hallmark of successful large firms, many exciting and profitable entrepreneurial opportunities exist in large organizations. This form of entrepreneurship typically exists within divisions of or in spin-offs from large companies or firms. In such settings, entrepreneurial activity centers on managing innovation and product development, although general finance and management skills remain important. Turnarounds — that is, reorganizing a firm and managing business and financial change as a unit of a company — present another entrepreneurial opportunity within large organizations. Many students will be exposed to entrepreneurial opportunity in large firms over the course of their careers in consulting or financial services firms.

- **Private Equity Financing: Venture Capital and Leveraged Buyouts.** Venture capital provides funds to companies in early stages of their development, typically before their initial public offering of stock. This specialized form of investment management has enormous appeal for students, but it is difficult to enter immediately after graduating. Many venture capital firms specialize in emerging technologies and wish to hire individuals with an operative background in those technologies. Many financial institutions and private partnerships pursue leveraged-buyout equity investment, which involves buying entire companies, whether private or public, with relatively modest equity investment. This has become an important business for all types of banks, some of which use the misleading term "merchant banking." Individuals selected for this area often have experience in such other areas as mergers and acquisitions; they must combine negotiating skills with an astute sense of what makes an operating business successful. This, too, can be a difficult area to enter immediately after graduating from business school, as most private equity funds hire people with substantial transaction experience.

- **Social Entrepreneurship.** Not all entrepreneurship takes place in the for-profit sector of the economy. Not-for-profit firms, including many educational, social services and arts organizations that fall outside the category of traditional charitable concerns, are becoming increasingly important. Identifying, financing and capturing opportunity are as essential in not-for-profit organizations as in profit-seeking businesses. Tight resource constraints mean that social entrepreneurship poses a challenge for even the sharpest management skills, and students interested in careers in not-for-profit management would benefit from significant exposure to entrepreneurial management. Over the course of their careers, many students will participate in social entrepreneurship as business or financial consultants or as members of boards of directors of not-for-profit organizations.

Career Course Map

CAREER
COURSE MAP

	New Ventures	Entrepreneurship in Large Organizations	Private Equity Financing	Social Entrepreneurship
FOUNDATION COURSES				
Introduction to Venturing	●	●	●	●
Entrepreneurial Finance	●	●	●	●
RECOMMENDED ELECTIVES				
Entrepreneurial Creativity	●	●		
Intellectual Property Issues	●	●	●	
Managing Growth	●			●
Managing Innovation		●		
Managing the Value of Internet Companies	●	●	●	
New Product Development	●	●		
Social Entrepreneurship				●
Turnaround Management		●	●	●
Venture Capital			●	
LAB COURSES				
Entrepreneurial Greenhouse Program	●			●
Launching New Ventures	●			●
OTHER RECOMMENDED ELECTIVES				
Advanced Corporate Finance	●	●	●	
Cost-Benefit Analysis				●
Economics of Strategic Behavior	●	●		
E-Strategy and Internet Firms	●	●	●	
Managerial Negotiations	●	●	●	●
Managing with Power	●	●		●
Money and Financial Markets	●		●	●
Real Estate Finance	●			
Taxes and Business Strategy		●	●	
Technology Management	●	●		

- **Foundation Courses**

- **Introduction to Venturing.** Provides an overview of the entrepreneurial process. The focus is on identifying and evaluating ideas and learning the steps and competencies required to launch a successful new venture. Students are challenged to consider the appropriateness of an entrepreneurial career for themselves. Specific topics include characteristics of successful entrepreneurs, techniques for finding and screening ideas, entrepreneurial finance, the politics of new ventures, valuation and deal making, writing a business plan, buying a business, family business dynamics, and managing crisis and failure. (http://www.gsb.columbia.edu/entprog/curriculum/Intro to Venturing Spring 02 syllabus.pdf)

- **Entrepreneurial Finance.** Focuses on the financing decisions of entrepreneurs. The first part of the course emphasizes identifying and valuing entrepreneurial business opportunities. The second part addresses how and from whom entrepreneurs raise funds and how financial contracts are structured to manage risk and align incentives. The third part addresses ways in which entrepreneurs "harvest" success and value. Teaching notes emphasize principals and tools, and class cases cover firms in many industries and countries. The course is valuable for prospective entrepreneurs, corporate finance specialists and consultants.

- **Lab Courses**

  - **Launching New Ventures (B8705).** Focuses on the evaluation, development and potential launch of a new business. For each business, five key issues are addressed: in-depth market analysis, product or service design, development of a marketing campaign, assessment of human resource requirements and building a realistic financial forecast. Working individually or in teams, students spend the entire term developing an effective and comprehensive presentation of a real business concept. Industry mentors and a board of directors composed of other class participants provide a reality check as students refine their business opportunity into a written and oral presentation ready to seek funding and commence operations. Projects can be based upon students' own ideas, new technologies from the Columbia Innovation Enterprise or other start-ups that have requested assistance from Columbia MBA students. Faculty members assist in identifying projects, but students are responsible for finding appropriate projects. By the second week of class, all students must have an approved venture project. (http://www.gsb.columbia.edu/entprog/curriculum/Launching New Ventures Spring 02 syllabus.pdf) (http://www.gsb.columbia.edu/entprog/curriculum/launching_new_ven_Schorer_F_01.pdf)

  - **Entrepreneurial Greenhouse Program (B9701-070).** Designed to assist students in readying their businesses for investment by providing funding for pre-launch expenses, access to experts in key areas and opportunities to present business plans to professional investors. An extensive screening process determines entrance into this program, and acceptance is limited to those with the top business plans. During the program, sponsors — including venture capital firms, Internet incubators, law firms, technology providers, and accounting and consulting firms — provide financial support, pro bono services and advice. The Greenhouse provides the seed funders with the opportunity to invest in student projects.

  - **Private Equity and Entrepreneurship in Emerging Markets (B8799-011).** Explores the factors necessary to organize, finance, and support new enterprises in selected emerging markets of Africa, Latin America and Asia. Background readings will be provided on the macro-economic and political context of the businesses studied as well as the specific industry setting. Some of the material studied will be from the point of view of the entrepreneur seeking to finance and develop a new business. The balance of the cases will be from the perspective of the financing entity seeking to invest in entrepreneurial ventures. Students will examine a variety of contemporary cases often from the actual materials used by the entrepreneurs to incorporate and fund their businesses. These will include private placement memoranda, partnership agreements and documents of incorporation. Classroom discussion will be critical to the learning process, and guest speakers will include some of the subject entrepreneurs.

- **Elective Courses**

  - **Entrepreneurial Creativity (B 8799-004).** Develop new product ideas, identify creative and successful ventures, be creative about the resources at your disposal, generate innovation by creating a conducive environment, and learn to sell creative ideas. This half-term course is about all of these topics and more. In every class, students are challenged through hands-on experiential exercises to be creative. They develop the tools and learn the principles necessary for being successful entrepreneurs and venture capitalists. In addition to real-world exercises, this course draws upon speakers and case studies. (http://www.gsb.columbia.edu/entprog/curriculum/ent_creativity_Iyengar_F_01.pdf)

  - **Entrepreneurial Selling (B8699-0065).** Teaches participants state-of-the-art selling skills that can be used with prospective clients, venture capitalists, potential partners, investors and candidates for employment. The half-term course is highly interactive and skill based and uses videotaped role-playing exercises to enhance skill acquisition. Subjects include relationship building, analyzing the client's situation, making effective sales presentations, resolving objections, gaining commitment and pre-call planning. Skills developed are applicable worldwide, and both cultural similarities and differences with respect to the sales process are discussed throughout the course. Whether you need start-up capital, senior management to back your ideas, or customers to hire your firm or buy its products, selling skills are crucial. You will develop them in Entrepreneurial Selling. This course is particularly relevant for students interested becoming entrepreneurs and for those seeking careers in consulting and financial services.

  - **Entrepreneurship and the Internet Economy (B9701-073).** Explores the answers to three big questions: (1) what do ocean waves, tornados, flu viruses and fashion trends have to do with how business works? (2) why does spending on technology make up more than half of all capital expenditure? and (3) what role do entrepreneurs and venture capital play in this mix? The first question pertains to business behavior, not just in terms of supply-and-demand economics but also in terms of the common behavioral characteristics of different systems: biological, geological, social, physical, et al. The second question the course tackles is the widely accepted notion that companies that successfully embrace technology as a competitive differentiator are more likely to win. Finally, the course considers how new technologies — brought to market by entrepreneurs and venture capitalists — become part of how business works. From the first glimpse of an innovation to its broad acceptance in the marketplace, the course examines each step in the process and why its role in the economy is vital to growth.

  - **High Technology Marketing and Entrepreneurship (B9601-051).** Attempts to provide some structure and offer guidelines for the development of marketing programs for high-technology firms facing dramatic changes in their technological and business environments. The course covers Internet companies (both start-ups and more established firms) as well as other high-technology ventures (e.g., biotech, wireless, computing). Topics covered include identifying and evaluating opportunities in the evolving environment; building and evaluating business models; and current trends in community building, online customer management (e.g., retention), distribution and branding strategies for high-tech companies. The course uses a combination of lectures, readings, "live" cases, discussions with industry guest speakers, and actual development tasks. Team projects that propose a new high-technology venture, or analyze an existing one, are key evaluative components of the course. This course is particularly relevant for students interested in careers in high-tech industries.

  - **Managing Growth (B9701-065).** Focuses on the difficulties and opportunities of managing growth in entrepreneurial settings emphasizing practical management techniques. Using diverse case studies, readings and guest lecturers, students study companies in transition in many industries and situations including family run businesses. Students learn the key aspects of growth management including leadership, strategic

planning, organization structure, operations, financial management, information systems and human resources. The course addresses the challenges faced by companies in various stages of growth and in particular the exceptional challenges caused by rapid growth.

- **Managing Innovation (B8704).** Focuses on the difficulties and opportunities of managing growth in entrepreneurial settings emphasizing practical management techniques. Using diverse case studies, readings and guest lecturers, students study companies in transition in many industries and situations including family run businesses. Students learn the key aspects of growth management including leadership, strategic planning, organization structure, operations, financial management, information systems and human resources. The course addresses the challenges faced by companies in various stages of growth and in particular the exceptional challenges caused by rapid growth.

- **New Product Development (B8604).** The development of new products and services is perhaps the most significant activity within a firm; it also one of the most risky — many years and millions of dollars are spent developing products that on average fail far more often than they succeed. The best companies, however, manage to bring out successful new products year after year. This course examines the strategies, processes and methods used by successful companies and the cutting-edge tools and techniques they use for new product development. The first part of the course focuses on new product development strategies at different stages of the product life cycle. The second part examines techniques for managing different stages of product development, from idea generation to market launch. Although the primary focus of the course is on physical products, much of the material is also relevant for the design of new services. Readings and guest speakers address both products and services. The course is particularly useful for those intending to pursue careers in product, service and brand management, in consulting and in high-tech industries as well as for entrepreneurs.

- **The Role of Private Equity in Corporate Finance (B9301-002).** Studies the role of private equity in the broader context of corporate finance. The course objectives are threefold: to reinforce understanding of the tools and concepts covered in the core finance course by applying them to private equity–related case studies; to examine more advanced topics in corporate finance relevant to understanding how and why private equity markets not only exist but thrive amid highly developed capital markets in the United States; and to introduce concepts, terms and institutions commonly used in the practice of private equity investing in the United States. (http://www.gsb.columbia.edu/entprog/curriculum/role_pvt_eq_corp_fin_syl_Moon_f_01.pdf)

- **Social Entrepreneurship (B8799-009).** Introduces students to the field of social entrepreneurship, the practice of growing mission-driven ventures that is garnering attention across the country by entrepreneurs, investors, philanthropists, foundations and consulting firms. Social ventures are enterprises that aim to achieve a double bottom line – important social returns as well as financial returns – through their products, services and other business practices. Entrepreneurial solutions to education, health, environment, workforce development, international development, and other large societal issues are being addressed through both for-profit and non-profit ventures. This course introduces students to the broad range of emerging practice within social venturing through case analyses and guests, helps students to become competent and sophisticated in applying and critiquing methods for measuring and reporting on social impact and social return (SROI), and introduces students to the emerging capital market for social ventures and the trade-offs in social and financial return expectations from different capital sources.

- **Turnaround Management (B8711).** Provides students with a perspective on identifying and remedying turnaround business situations, that is, established businesses experiencing operational, financial and managerial difficulties. Students learn, from the

standpoint of a general manager, how to distinguish between "troubled" and "crisis" companies and how to use both qualitative and quantitative tools to effect solutions. The course integrates the functional disciplines of the core curriculum; a basic understanding of accounting and corporate finance is necessary. Cash flow and balance sheet projections, debt restructuring and liquidation analysis, and credit relationships are central components of class work. Assignments are group-oriented projects culminating in a final group analysis of a turnaround candidate.

- **Venture Capital Seminar (B9301-075).** Designed to give students an overview of the venture capital industry and a detailed understanding of the workings of a venture capital partnership. Lecture topics include developing a venture investment strategy; structuring a venture capital partnership and raising capital; developing deal flow; evaluating investment opportunities; pricing, structuring and negotiating initial and follow-on investments; working with portfolio companies; serving on a board of directors; dealing with problem investments; exit strategies; and portfolio management. Case studies and guest speakers are used to illustrate lecture topics. Although the course emphasizes early-stage venture capital investing, all stages of investing, including leveraged buyouts, are discussed.

- **Venture Capital and the Entrepreneurial Company (B9301-042).** Taught from the point of view of the venture capitalist and covers the following topics:

  - an overview of venture capital industry
  - analysis and evaluation of business plans
  - financing structures
  - due diligence techniques
  - legal considerations
  - new venture management
  - exit strategies
  - venture capital fund raising and other related topics

University of California – Berkeley (#10)

http://entrepreneurship.berkeley.edu/

- **Entrepreneurship Course Descriptions:** The Haas School offers an extensive array of courses in entrepreneurship and innovation. The curriculum emphasizes the integration of new business planning, creation, and development in real time. Courses may be taken as individual electives or in a coordinated program culminating in the award of a certificate in entrepreneurship. Executives and advisors experienced in the creation and growth of new companies join Haas School faculty to teach in the entrepreneurship program.

- ***MBA Certificate in Entrepreneurship.*** To earn this certificate, a student must satisfy course requirements that are intended to convey basic skills required to identify an entrepreneurial opportunity, design the business, obtain financing and manage the growth process. In addition, the student must gain first-hand experience with a young company, observing how entrepreneurs confront and solve problems, or by working on the creation of a new business enterprise. The Entrepreneurship program is intended to provide educational opportunities for students in their second year. Knowledge at least at the level of the MBA core courses is assumed.

- **Required Courses** (one course from each of a, b, and c)
  - **A.** BA 295A: Entrepreneurship
  - **B.** One of the following:
    - BA 295D: New Venture Finance
    - BA 295D: Venture Capital and Private Equity
  - **C.** One of the following (course offerings change each semester):
    - BA 290A: Managing New Product Development
    - BA 262B: Internet Strategy
    - BA 295C: Marketing for High-Tech Entrepreneurs
    - BA 295C: New Telecom Ventures
    - BA 295C: Entrepreneurship in Biotechnology
    - BA 295C: Opportunity Recognition in High Technology
    - BA 295C: Top Down Law

- **Field Experience** (satisfactory completion of either a or b below)
  - *Qualifying Internship/Work experience*: Work in an entrepreneurial venture or in a business that works directly with such venture (i.e., a venture capital firm). This requirement may be satisfied with an internship arranged through the Lester Center's Partnership in Entrepreneurial Leadership (PEL) Program, Venture Capital Internship Program, Mayfield Fellow Program or an International Program involved with Entrepreneurship.
  - *Qualifying New Venture Development Exercise:* Work on his/her own new venture project. This project may be further development of a project undertaken as part of BA 295A. It may also be a BA 293 project or it may be the subject of development effort in BA 295C.
  - Qualifying field experience must be documented by a write-up no longer than 500 words specifying scope and definition of the experience or exercise, and a summary of lessons learned.

Distinctive Regional University Entrepreneurship Programs

The following is an alphabetical listing by institution of curriculum profiles and related course descriptions. For those with a U.S. News and World Report Ranking, it is indicated. For current offerings check the university curriculum and course description web pages.

- Ball State University
- Bradley University
- DePaul University (Kellstadt Graduate School of Business) (IL) (#26)
- Georgia State University
- San Diego State University (#20)
- University of Michigan Business School (#11)
- University of North Carolina – Chapel Hill (Kenan-Flagler) (#22)
- Wake Forest University – Babcock Graduate School of Management

Ball State University

http://www.bsu.edu/web/entrepreneurship/pages/home1.3/Courses.html

- **Undergraduate Program in Entrepreneurship:** The bachelor's degree has been offered since 1983. It provides a nationally acclaimed entrepreneurial challenge that requires students to risk their degree in the final course. This New Venture Creation course provides an opportunity for students to experience the risks and rewards of entrepreneurship resulting in a "spine-sweating" experience. Entrepreneurship Courses

- **MGT 341** Small Business Venture
- **MGT 346** Entrepreneurship
- **MGT 441** Small Business Practicum
- **MGT 443** Managing the Venture – Financing Process
- **MGT 449** New Venture Creation

- **Graduate Program – MBA in Entrepreneurship:** This national award-winning program uses state-of-the-art facilities on the Ball State University campus to reach over 600 students enrolled for the MBA degree. The MBA program is broadcast to over 60 locations through interactive television. The MBA in Entrepreneurship is specifically designed to prepare graduate students for the "entrepreneurial perspective" needed to compete in the contemporary business world. Entrepreneurship Courses:
  http://www.bsu.edu/web/entrepreneurship/pages/home1.3/Courses.html

  - **MGT 640** Entrepreneurship: Contemporary Development
  - **MGT 647** Corporate Entrepreneurship
  - **MGT 649** Entrepreneurial Strategy

Bradley University

http://www.bradley.edu/turnercenter/education.htm

- **Undergraduate Program – Concentration in Entrepreneurship.** Bradley University's *Foster College of Business* (http://www.bradley.edu/fcba/index.html) offers a concentration in Entrepreneurship within the Department of Business Administration. The purpose of the concentration is to help those students who may someday want to start their own business. Some will start a business while in college or immediately after graduation. Others will work in the corporate world for a few years and then launch their own venture. The Entrepreneurship Concentration provides the theory of entrepreneurship plus ample opportunities to apply that theory through the following courses as well as internships that allow students to work for entrepreneurial firms. Courses that are required specifically for the Entrepreneurship Concentration include:

  - **BMA 359** Entrepreneurship and Venture Management
  - **BMA 451** Small Business Management
  - **FIN 384** Entrepreneurial Finance
  - **BMA 356** Human Resource Management
  - **ECO 335** Managerial Economics
  - **MTG 381** Integrated Marketing Communications
  - **BMA Elective**: Could include a course in Family Business Management or Technology Entrepreneurship or another course with a BMA heading

DePaul University (Kellstadt Graduate School of Business) (IL) (#26)

http://ent.depaul.edu/html/programs/academic_programs.shtml
http://condor.depaul.edu/~entrepre/about.htm

- **Entrepreneurship Graduate Course Descriptions:** The graduate entrepreneurship program was launched by Harold P. Welsch in the early eighties with one course, Entrepreneurship and New Venture Management. Since then, the entrepreneurship major has grown from three students to over 100 students in 2002. To achieve an emphasis in entrepreneurship, students must take four entrepreneurship classes. Entrepreneurship and New Venture Management, Creativity in Business, Growth Strategies for the Emerging Enterprise and one entrepreneurship elective. More classes and electives are being created as the program expands, and there are currently 15 entrepreneurship courses offered. The teaching staff has increased from two in 1985 to the current level of six. In 1991, an undergraduate program was developed. The Coleman

Foundation Chair in Entrepreneurship was awarded in 1989 to Dr. Harold P. Welsch, who serves as coordinator of the program. The program itself is designed to be pragmatic and useful to the potential entrepreneur. Knowledgeable speakers are often used to present the facts of entrepreneurial life and share the technical knowledge you need to cultivate skills. Focus is also drawn to alternative strategies that have been empirically-tested by previous entrepreneurs.

- **Course Offerings** (See http://condor.depaul.edu/~entrepre/program.html for descriptions.)

Entrepreneurship and New Venture Management	Franchising Management
Growth Strategies for the Emerging Enterprise	Financing New Venture
Management of Innovation and Technological Change	Contemporary Entrepreneurship
Corporate Ventures and Intrapreneurship	Business Valuation Concepts
Management of Family Business	Creativity & Entrepreneurship
Global Entrepreneurship	Business Plan Development
Successful Entrepreneurship Models	Urban Entrepreneurship
Entrepreneurship Policy: Diagnosis and Planning	Entrepreneurship in the Arts
Entrepreneurship Law	

Georgia State University

http://www.cba.gsu.edu/index.html

- **Entrepreneurship Course Descriptions:** The J. Mack Robinson College of Business has for many years been on the forefront in entrepreneurship courses. The Russell Entrepreneurship Center has or is currently working on the following innovations:
    - A concentration in Entrepreneurship for MBA students
    - A career path in International Entrepreneurship for MBA students
    - An innovative and award winning internship course for entrepreneurship students
    - Between $5,000 and $10,000 in awards each year to students with innovative business concepts and plans. The Herman J. Russell, Sr. and the Moses Lee Reid endowments have made possible the awards, which will be even larger in future years.

- **MBA Concentration in Entrepreneurship:** Concentration in entrepreneurship for an MBA student requires completion of 12 semester hours of courses as described below. Some of these courses have prerequisites. ENT 8000 may be exempted with documentation of having earned a grade of B or better in a graduate or undergraduate introductory course in entrepreneurship or with documentation of having started a new venture no more than 10 years prior to entering MBA program. If exempted, ENT 8000 must be replaced by a second course from section C below. It is suggested that courses with higher numbers be taken later in the student's program of study.
    - A. Take both of the following two courses, unless ENT 8000 is exempted:
        - ENT 8000: Entrepreneurship and Enterprise
        - ENT 8900: Field Study in Entrepreneurship
    - B. Take one of the following two courses:
        - ENT 8100: Business Plan Development
        - ENT 8200: Venture Creation in Electronic Commerce
    - C. Take one of the following five courses, or take two if ENT 8000 is exempted:
        - HRM 8210: Negotiation and Dispute Resolution
        - IB 8100: International Entrepreneurship (http://www.cba.gsu.edu/iib/courses/ib/ib8100.htm)
        - IB 8680: Technology and Global Competition (http://www.cba.gsu.edu/iib/courses/ib/ib8680.htm)
        - MGT 8430: Enhancing Leadership Skills (http://www.gsu.edu/~wwwmgt/description_g_s.htm#mgt8430)

- Mgt 8820: Competitor Analysis

- **Course Descriptions**

  - **ENT 8000: Entrepreneurship and Enterprise.** An introductory survey course for students who might be interested in starting their own business or who might develop new businesses in the corporate environment. The environment of entrepreneurship and the behaviors of entrepreneurs are studied. Students learn how to recognize and evaluate new business opportunities. Two major activities in the course are to interview entrepreneurs and to study the feasibility of a business idea.

  - **ENT 8900: Field Study in Entrepreneurship.** Immerses graduate students in the planning and execution of complex entrepreneurial activities in a small existing or start-up business. Activities involve new business formation, new product planning and introduction, organization direction setting and control, and management of growth or turnaround. While students are under the general supervision of the faculty, they are expected to display responsible independent action and to interact frequently with a business founder, owner, or chief executive. The course may be repeated once for credit.

  - **ENT 8100: Business Plan Development.** In this course, students develop a business plan either for an independent new venture or for a new corporate venture. The principal objective is to learn how to prepare a full business plan that is ready to be presented to investors. Students will present their plans to investors or enter them into a business plan competition. Students critically evaluate the business plans of others, and they interact with investors. Students take ENT 8100 or ENT 8200, but not both.

  - **ENT 8200: Venture Creation in Electronic Commerce.** Examines the development of digital, or electronic, commerce through the creation of prototype electronic commerce ventures by student teams. The ventures may be independent or corporate ventures. Topics include business creation, electronic commerce opportunities, technology of the Internet, entrepreneurship using the World Wide Web, and new venture development. Existing Web-based businesses are examined. Students take ENT 8100 or ENT 8200, but not both. This course is appropriate for students whose programs of study emphasize

- **Field Study. MGT 4505: Entrepreneurship Field Study** (undergraduate)
  ENT 8900: Field Study in Entrepreneurship (graduate)
  The Management of Department of Georgia State University offers both graduate and undergraduate students a field study course in which they work with Atlanta entrepreneurs who are starting, expanding, changing or turning round their business. Students might help founders turn their ideas into a viable business, determine the feasibility of offering a new product or service in an existing firm, plan a new marketing effort or many other things. Students will also have a chance to observe owners, founders, and entrepreneurial managers at close range and to see for themselves what makes an entrepreneur successful or unsuccessful. Students who make a grade of B or better in the course will be granted a $1000 scholarship. Between 20 and 25 students are accepted in each class and the course will be offered in the fall and spring semesters. (http://www.gsu.edu/~mgtbbo/entrepreneur/E-syllabus.htm)

  The Ewing Marian Kauffman Foundation's Center for Entrepreneurial Leadership in Kansas City and The Coleman Foundation of Chicago have provided much of the funding that supported the initiation of Entrepreneur Field Study.

- **Undergraduate Courses Offered**
    - Mgt 4500: Entrepreneurship and New Venture Management (http://www.gsu.edu/~wwwmgt/description_u_s.htm#mgt4500)
    - Mgt 4505: Entrepreneurship Field Study (http://www.gsu.edu/~mgtbbo/entrepreneur/)
    - Mgt 4550: Managing a Family Business (http://www.gsu.edu/~wwwmgt/description_u_s.htm#mgt4550)
    - Mgt 4750: Small Business Management (http://www.gsu.edu/~wwwmgt/description_u_s.htm#mgt4750)

San Diego State University (#20)

http://www-rohan.sdsu.edu/dept/emc/home.shtml

- **Entrepreneurship Course Descriptions:** SDSU offers full and part-time programs in Entrepreneurship at the graduate level, and coursework in Entrepreneurship at the undergraduate level within SDSU's College of Business. These educational activities are supported by the Entrepreneurial Management Center (EMC), which provides curriculum development, serves as a liaison between the entrepreneurial business and academic communities, and promotes numerous programs for students that enhance entrepreneurial skills and knowledge. The entrepreneurial topics presented include the outcomes of the entrepreneurial process: the creation of wealth, new enterprise, innovation, organizational change, increased firm value, and organizational growth. The EMC focuses programming on both the entrepreneur and entrepreneurial process with results in a variety of outcomes essential to economic development. (http://www-rohan.sdsu.edu/dept/emc/student_programs/academic_programs.shtml)

- **Graduate Entrepreneurship Courses:** The graduate program in Entrepreneurship is designed to provide students with the tools, knowledge, and skills necessary to meet the challenges of working in entrepreneurial settings. Students specialize in Entrepreneurship by completing 12 required credit hours of class work. In addition to the below courses in entrepreneurship, electives are added from different disciplines such as Marketing, Finance, Real Estate, or Accounting, depending upon the student's particular areas of interest. Students can customize their coursework to meet a wide array of needs and desires including those who wish to:
    - Start and manage their own firms
    - Work in growth-oriented organizations
    - Serve as professional service providers to entrepreneurial clients
    - Work with investors in evaluating proposed entrepreneurial ventures
    - Pursue doctoral degrees in the academic field of Entrepreneurship

    - **MGT 724: Entrepreneurship.** Examination of the entrepreneurial approach as related to opportunity identification and evaluation; concepts, theory and techniques of managerial innovation and implementation; analysis of entrepreneurial skills.

    - **MGT 729: Managing the Growing Firm.** Issues related to managing a growing organization, including attracting and retaining a management team, satisfying the demanding requirements of investors, and building credibility with customers and suppliers. From the perspective of both investors and entrepreneurs.

    - **MGT 731: Strategic Management of Technology and Innovation.** Assessment of technological competencies and formulation of entry strategies for high-technology markets. Managing project teams and high-technology professionals.

    - **MGT 743: Business Plan Development.** Principals and techniques for developing a business plan, designed to either start a new venture or take an existing venture into new markets. Evaluation of issues facing entrepreneurs seeking to capitalize on market opportunities.

- **FIN 641: Financing the Emerging Enterprise.** Financial considerations in emerging and growing enterprises to include internal financial management, external funding sources, and dealing with venture capitalists. Emphasis on integration of theory, computer analysis, and human judgment in financial decision-making.

- **MKTG 761: Product Innovation Management.** New product development and issues related to overall management of product innovation in context of entrepreneurial opportunity, start-up ventures, and existing organizations. Focus on planning, design, and implementation of marketing strategy.

- **BA 780: Field Studies in Business: Internship.** Application of entrepreneurial business concepts to real world organizations. Students work under supervision of a faculty member to perform a project utilizing theories and principles from previous business coursework.

- **BA 795: Integrative Business Analysis: Business Plan Competition.** A practical experience in business plan development and presentation. Students representing SDSU in the NASDAQ/SDSU International Student Business Plan Competition, or one of the other university-sponsored competitions in the country, may receive 3 units of credit towards their final integrative experience in the graduate program.

- **Undergraduate Entrepreneurship Courses:** For undergraduate students, SDSU offers an introductory entrepreneurship course. Interested students may also participate in many of the EMC programs, including the business plan competition and the student club Entrepreneur Society.

  - **MGT 450: Venture Management.** Covers the process of initiating, expanding, purchasing, and consolidating businesses, and includes concepts, theories, and techniques of managerial innovation and implementation.

University of Michigan Business School (#11)

http://www.zli.bus.umich.edu/index.asp

- **Entrepreneurship Course Descriptions:** Please note that additional courses are available as entrepreneurial electives. (http://www.zli.bus.umich.edu/courses_faculty/)

  - **ES 395: Entrepreneurial Management (undergraduate).** Provides an overall understanding of entrepreneurship and small business management, and prepares students for starting and succeeding in business. For those planning to work for a corporation, this class will also be of value, orienting them to think and act more entrepreneurially. Entrepreneurship is about risk and failure: embracing it, and learning from it. This course focuses on the concepts, skills, personal experiences, access to and retention of information and resources, attitudes, and alternatives that entrepreneurs need to make better decisions. These informed decisions positively influence the odds for success, and thereby minimize the odds (and costs) of failure. Strong emphasis is placed on the development of a business plan that applies the proper methods, techniques and skills needed to successfully develop and grow a new venture or find, evaluate and purchase an existing company. Specific objectives of the course are for students to: gain experience identifying and evaluating potential business ideas; understand capital and other financial resources; and create a winning business plan and presentation. The course draws on a broad selection of readings, class lectures and discussions, case studies, guest speakers and videos.

  - **ES 515: New Venture Creation I.** Entrepreneurial ventures, to be successful, require something new, something better that can provide a competitive advantage. This new

and better product or market or process is termed the venture concept. The ES 515 course first looks at the other factors that lead to entrepreneurial success — the characteristics of the entrepreneur, the trends in the environment, and the availability of support — and then focuses on the means of developing innovative products, markets, or methods that can serve as viable venture concepts. Lastly, the course considers the means of defining those concepts so that they are clearly understandable to other people, and of confirming the competitive advantage or advantages so that they are clearly recognizable by potential investors. Defining the concepts and confirming the advantages are essential before large amounts of time are invested in the preparation of a complete business plan.

- **ES 516: Entrepreneurship via Acquisitions – Finding and Evaluating a Business for Acquisitions**. Most people, when they think of entrepreneurship, think first of start-up ventures based upon innovative products, markets, or processes. There is an alternative, however, and that alternative is the purchase of an existing company that can grow. ES516 overviews the evolution of organizations, highlighting the role played by acquisitions in this process, then proceeds with a discussion of how the individual entrepreneur develops a process for acquisition of a firm. Topics include: backgrounds of entrepreneurs suited for an acquisition career path, the search process, due diligence, negotiation, financing turn around strategies and wealth creation. Firms in a range of industries will be discussed.

- **ES 517: Researching & Writing the Business Plan.** Once new and better products, markets, or processes have been defined and confirmed for a new entrepreneurial venture, whether a startup or turn-around, it is necessary to prepare a full business plan. A full business plan is more than just a document that is to be handed to potential investors; it is a detailed road map of the actions that will have to be taken to either start or turnaround the proposed new venture. As such, it should contain sections on marketing policies, market research, production policies, cost analysis, organizational policies, financial projections, financial sources, and long-term growth plans. The ES517 course looks at each of these sections in detail, and helps students in the preparation of realistic business plans based upon their startup or turnaround venture concepts. Teams of four or more students complete business plans for venture concepts defined and researched in ES515 (must be taken in conjunction with ES 515).

- **ES 569: Managing the Growth of New Ventures.** Focuses on the unique management issues and problems of firms in the "adolescent" stage of development – beyond the critical first few years when many firms fail. Specific topics focus on growing the firm to maturity: understanding organizational evolution, strategic positioning and adjustment, developing and managing inter-organizational networks, the role of strategic alliances, and visionary and pragmatic leadership.

- **ES 578: Growth Strategies for the High Potential New Ventures.** Focuses on providing students with an understanding of the unique industry contexts, strategic opportunities, and constraints faced by high potential new ventures. Such ventures are defined here as those typically funded with high risk/high return venture capital, and expected to achieve liquidity for investors (i.e., IPO, acquisition, management buyout) within approximately five years of start-up. Most firms in this category have a strong technology component. Our focus is on the current and emerging industry contexts providing immense opportunity for such firms, and successful venture strategies within these contexts. This course is designed for students planning a career related to high potential ventures, for example, investment banking involving venture capital and/or IPOs, consulting, and start-up and early-stage management.

- **ES 581: Urban Entrepreneurship.** Addresses the specific challenges and opportunities to be found in urban areas, with special focus on entrepreneurship among ethnic-racial minorities and, particularly, African Americans. The lectures, discussion and presentations by urban and minority entrepreneurs will address issues of product design,

marketing, access to capital and strategic targeting of business initiatives. Impacts of public and private policies, such as tax incentives and franchising methods, will be considered.

- **ES 615: Entrepreneurial Management.** Focuses on the preparation of the business plan for new ventures. Competitive positions, marketing policies, research surveys, production methods, financial projections and organization assignments all have to be included in this document. The course is taught both through the case method and through team projects involving 4-6 students working on a business development project for the entire term. The business plan project requires a substantial amount of research, team and faculty meetings, detailed and carefully constructed deliverables, and the final delivery of a full business plan. While there are no prerequisites for this course, students in the later years of their MBA program will gain more due to the course's interdisciplinary format.
- **FIN 623: Venture Capital, Private Equity I.** This course focuses on financing needs of emerging growth companies. Credit is granted for F623/F624 OR F625.
- **FIN 624: Venture Capital, Private Equity II.** This course covers more advanced issues in venture capital such as evaluation and structure of capital investment proposals. Credit is granted for F623/F624 OR F625.

- **Course Sequence Map:**

STARTING NEW VENTURES	FUNDING NEW VENTURES	MANAGING THE GROWTH OF NEW VENTURES	SPECIAL ENTREPRENEURIAL TOPICS
ES 515—New Venture I - Ideas for Start-up Ventures	FIN 623—Venture Capital, Private Equity I	ES 569—Managing the Growth of New Ventures	ES 530—Franchising
ES 517—Researching & Writing the Business Plan	FIN 624—Venture Capital, Private Equity II	BA 553—Entrepreneurial MAP (EMAP)	ES 581—Urban Entrepreneurship
ES 615—Entrepreneurial Management	ES 516—Entrepreneurship Via Acquisition	MKT 618—Marketing Research	ES 742—Entrepreneurial Turnaround Management
ES 516—Entrepreneurship Via Acquisition		ES 742—Marketing for Entrepreneurs	ES 742— Family Business
ES 647—Strategic Tech. Commercialization		BE 565—Business Transactions	ES 504—Legal Aspects of Entrepreneurship
CIS 581 & 582—Business Infrastructure			FIN 626—Venture Capital & Private Equity Finance
CSIB 395—Entrepreneurial Management			LHC 521—Writing Fundamentals for Entrepreneurs
			BA 519—Managing the Non-Profit Organization (Social Entrepreneurship)

University of North Carolina – Chapel Hill (Kenan-Flagler) (#22)

- **Entrepreneurship Course Descriptions (*MBA*).** The MBA Concentration in Entrepreneurship is comprised of approximately twenty courses spanning all disciplines of business. Much of the curriculum is taught by practicing entrepreneurs, venture capitalists, venture lawyers and others who have the most current and relevant perspective on the entrepreneurial experience. http://www.cetv.unc.edu/CETV_Entrepreneurship_Curricul/cetv_entrepreneurship_curricul.html

- **Business Plan Exercise**
- **Information Technology and E-Commerce.** Provides an overview of both technologies and managerial techniques currently utilized by business entities in furthering their strategic objectives.
- **New Venture Creation I.** New Venture Creation covers the first stages of business planning, including: How to source new venture ideas and how to screen ideas for viability.
- **New Venture Creation II – The Business Plan.** Extends the process begun in New Venture Creation.
- **Launching the Company**
- **Entrepreneurship and Minority Economic Development.** Designed to promote and foster entrepreneurship and economic development in severely distressed urban communities.
- **Negotiations.** The general objective of this course is to improve your skills in all aspects of negotiation
- **Building Infrastructure for Growth and Success**
- **Legal Issues in High Technology Startups**
- **Managing, Advising, and Growing Small Businesses**
- **Intellectual Property.** Overview in practical, real-world aspects of managing intellectual property assets.
- **Entrepreneurship in the Biotechnology Industry**. An understanding of the science of biotechnology and how this technology is being used to impact current industries and how it is creating novel opportunities.
- **Advanced Topics in Information Technology and Electronic Commerce**
- **Technologies of E Commerce**
- **Business Opportunities on the Internet**
- **Entrepreneurial Finance.** Covers key aspects of the financial leadership of technology startups aside from the raising of equity capital. Capital Structure, Function of the CFO, Cash Flow Analysis, Leasing, Strategic Deals etc.
- **Venture Capital Management.** Topics regarding venture capital companies, topics regarding the venture capital process, and topics regarding portfolio companies (that is venture capital funded companies).
- **Venture Capital Deal Structure**
- **The Private Equity Market.** Applies the intellectual frameworks from corporate finance to the private equity industry.
- **Internet Marketing**
- **Entrepreneurial Marketing**

Wake Forest University – Babcock Graduate School of Management

- **Entrepreneurship Course Descriptions.** The Babcock School offers a primary and secondary concentration in entrepreneurship, and they define entrepreneurial education broadly to include many career paths—new business ventures, corporate ventures within existing companies, service providers (venture capitalists, consultants, attorneys) working with new ventures, social entrepreneurship within the non-profit sector, and family and closely-held businesses. Among the 17 course offerings are: New Venture Creation, Family Business Dynamics, Fast-Growth Management, Business Plan Practicum, Financing the Entrepreneurial Venture, New Product Introduction, Business-to-Business Marketing, Internet Marketing, Principles of E-Business, and Value Creation. More than 90% of all full-time students take one of these entrepreneurship electives and more than 70% take two or more. Faculty who teach these courses come from a diverse group of 15 full-time, part-time and executive faculty.
  http://www.mba.wfu.edu/ace/programs.html

  - **Required Courses**
    - Business Plan Practicum or Management Consulting Practicum
    - Entrepreneurship

  - **Select one of the following**
    - Family Business Dynamics
    - Fast-Growth Management
    - Financing the Entrepreneurial Venture
    - New Product Introduction

  - **Recommended Electives**
    - Advertising Management
    - Business-to-Business Marketing
    - Internet Marketing
    - Marketing Research
    - Marketing Strategy & Planning
    - Operations Strategy I
    - Principles of E-Business
    - Project Management I
    - Value Creation

Appendix D

Engineering School Entrepreneurship Curriculum and Course Descriptions

- Georgia Institute of Technology
- Johns Hopkins University
- Louisiana Tech University
- Massachusetts Institute of Technology (MIT) School of Engineering
- Pennsylvania State University
- Stanford University School of Engineering
- University of California – Berkeley
- University of Central Florida (UCF) Engineering Entrepreneurship Certificate Program at KSC
- University of Connecticut, Chemical Engineering Department
- University of Iowa
- University of Pennsylvania School of Engineering and Applied Science

Georgia Institute of Technology

- **Program For Engineering Entrepreneurship**
    - **Principles of Management Course Overview.** This course is required for the certificate and is a prerequisite for the other courses in the certificate program. It is normally offered every semester. The course provides a broad overview of the key concepts, tools and techniques needed to be successful in the biomedical technology and health care industries. It introduces the basic functional areas of management such as accounting and marketing, and utilizes appropriate biotechnology industry applications and cases. Faculty members in Management jointly prepared this course with Dr. David Ku and Dr. Terry Blum coordinating the development and delivery of the course. See Syllabus: (http://www.entrepreneurship.gatech.edu/Certificate/Mgmt 6753 Fall 2002 syllabus1.htm)
    - **Legal Issues in Engineering Entrepreneurship.** This course covers the legal and intellectual property issues relating to patenting, licensing, liability and regulatory oversight, and raising capital. Visiting Professors provide expert instruction on legal issues of intellectual property protection, licensing, product development in the global marketplace, and FDA regulations. These legal issues relate primarily to the formation and success of high-tech and biotechnology ventures. See 2002 Course Syllabus: (http://www.entrepreneurship.gatech.edu/Certificate/Georgia Tech Syllabus.htm)
    - **Technology Ventures.** This class focuses on the development of a business plan for a high-tech start-up company. Teams will work together to plan how to bring technology to market. The teams are composed of engineering and management students working together to prepare and present a business plan. Investors, entrepreneurial service providers, and successful entrepreneurs serve as speakers for the class and provide assistance to the teams. The class heavily utilizes case studies. Each of the teams have the opportunity to practice presentations of their business plans, and have the opportunity to present the plan to a panel consisting of venture capitalists and entrepreneurs for feedback. Class topics include: the entrepreneurial process; new venture ideas; opportunity recognition and evaluation; financial planning; competition; communication and presentation; legal aspects of forming a company; people issues; outsourcing decisions; regulatory environments; and creating business plans. See Syllabus: (http://www.entrepreneurship.gatech.edu/Certificate/Syllabus - Spring 2002.htm)

Johns Hopkins University

- **551.460: Entrepreneurship.** This course provides students with a solid introduction to the entrepreneurial process of creating new businesses. Students will gain an appreciation for the

investors' perspective in assessing opportunities, evaluating strategies and valuing the new enterprise. The course will cover the principal components of building a successful venture including management, market analysis, intellectual property protection, legal and regulatory issues, operations, entrepreneurial financing, and the role of the capital markets. The course will feature several guest speakers including venture capitalists, entrepreneurs and leading service providers. Course work will include case studies and creation of investor marketing materials.

- **551.305: Intellectual Property Protection and Planning.** This course explores the impact of intellectual property on businesses and organizations. It addresses primary questions – just what is intellectual property; what value does intellectual property have; and how can intellectual property be protected. In addition, the tension between exclusive rights in intellectual property and free competition will be discussed throughout this course. Through interactive, application-oriented exercises, and a group project, students will have ample opportunity to develop a better understanding pertaining to the different types of intellectual property, and be involved in developing a business plan for protecting intellectual property. The group project requires each team to research (using secondary sources) an existing organization's intellectual property, its protection/exploitation plan and its business goals. Then, individual teams will analyze how well the organization's current business plan relates to its specific intellectual property goals, and recommend changes to better meet these specific goals. Objectives:

  1. To provide an introduction to copyright, patent, trademark and trade secret law.
  2. To provide an insight into the types of property that can be protected and the value of this protection.
  3. To provide students the opportunity to evaluate and formulate an intellectual property protection plan.
  4. To challenge students to consider the social and organizational impacts created by the tension between exclusive rights and free competition.
  5. To enhance communication, critical thinking, and team building skills, in addition to applying these skills in evaluating and developing an intellectual property protection/exploitation plan.

Louisiana Tech University

- **Engineering 489C-68: Innovative Product Design** (http://www.cenit.latech.edu/cenit/focusareas/ipd.html). Innovative Product Design, a pilot multidisciplinary course, aimed at stimulating innovation and entrepreneurship in information technologies (IT). Inspired by a renowned product design firm, IDEO, the course will adopt a team approach in problem understanding and solving. The IDEO design and prototype development philosophy is presented in the course text. This is an intensive 3 credit hour course spanning a 3-week period. From day one, students will be given a real-world IT related problem to solve. Students will be organized into a hot team that consists of individual students from diverse disciplines. The hot team concept is to synergize ideas and the different perspectives from which the students may see problems and solutions.

Massachusetts Institute of Technology (MIT) School of Engineering

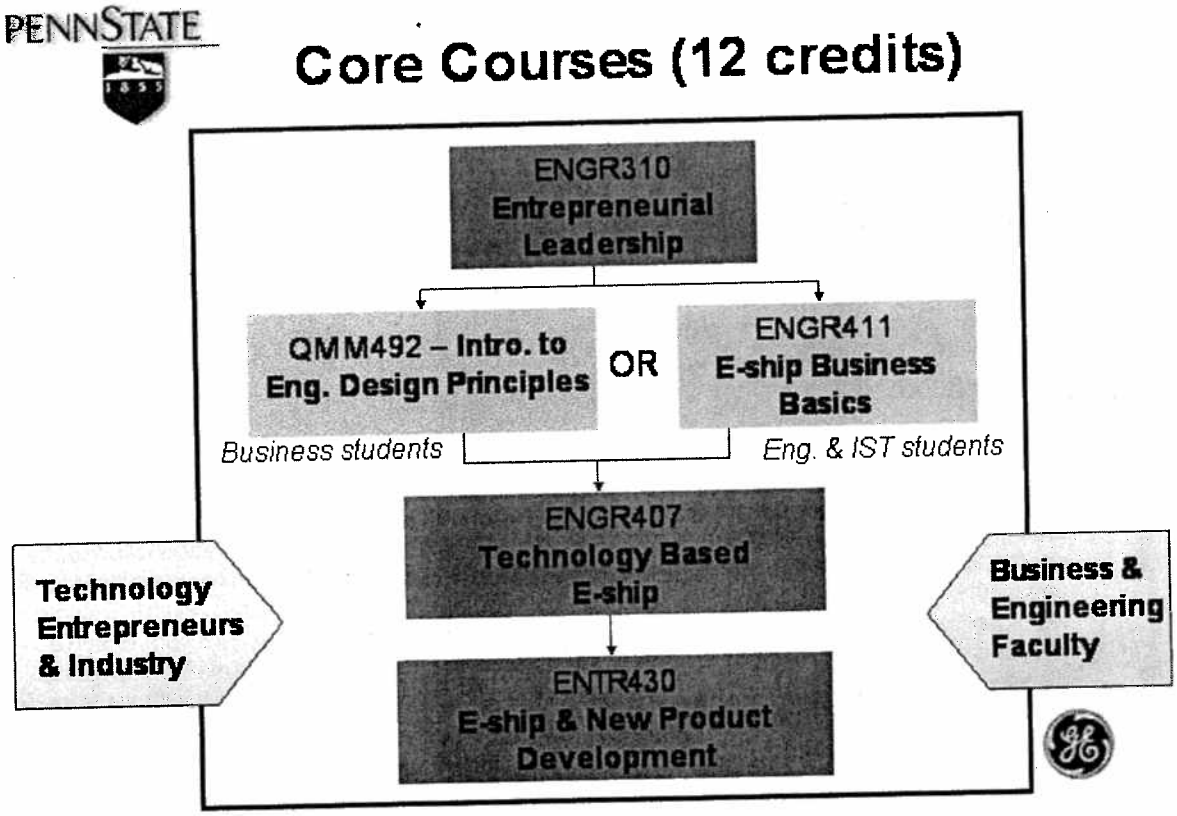
- **MITE^{2}S (Minority Introduction to Engineering, Entrepreneurship, and Science):** Entrepreneurship. Students learn the various stages of entrepreneurship and new business formation, focusing on the development of knowledge, skills and attitudes key to entrepreneurship

and business startups. The course, sponsored by the Kauffman Center for Entrepreneurial Leadership, gives the students instruction in high-tech finance, accounting, and business planning. Teams of MITE^{2}S students present their business plans to local entrepreneurs at the Enterprise Fair.

Pennsylvania State University

http://e-ship.ecsel.psu.edu

- **Engineering Entrepreneurship Minor:** The Minor consists of 18 credits, defined as 12 "core" credits (the 4 3-credit courses listed below) and at least 6 additional supporting courses. Courses in the E-SHIP Minor use problem-based learning, case studies and new product prototyping. Core courses include business plan presentations and competitions, and open-ended design problems.
    - ENGR497D/ENGR310: Entrepreneurial Leadership (http://www.ecsel.psu.edu/e-ship/engr497d.html)
    - ENGR497G/ENGR411: Entrepreneurship Business Basics (http://www.ecsel.psu.edu/e-ship/engr497g.html)
    - ENGR407: Technical Entrepreneurship (http://www.ecsel.psu.edu/e-ship/engr407.html)
    - ENGR497A/ENTR430: Entrepreneurship and New Product Development (http://www.ecsel.psu.edu/e-ship/entr430.html)



Stanford University School of Engineering

One of STVP's key roles is educating future scientists and engineers about high technology entrepreneurship. We believe that in addition to their technical skills, students need to know how to identify market opportunities and how to take leadership roles in business. To meet our goal, STVP offers both introductory and advanced courses, including entrepreneurial marketing, finance, strategy, and innovation. Our courses range from large lectures such as the Entrepreneurial Thought Leader lecture series, which is open to the public, to selective seminar style courses, such as the Mayfield Fellows Program.

- **E140 A, B &C: Management of Technology Ventures.** An intensive three-quarter sequence of courses for students who have gained admission to the Mayfield Fellows Program. It is a work/study program that offers an in-depth analysis of high technology start-up companies (http://www.stanford.edu/class/e140/).

- **E 145: Introduction to High Technology Entrepreneurship.** Gives a high-level overview of the entrepreneurial process, enterprise and individual. It is intended for juniors and seniors in engineering, natural sciences, social sciences and humanities who would like to build a high technology company and for those with a general interest in entrepreneurship. (http://www.stanford.edu/class/e145/)

- **MS&E 270: Strategy in Technology-Based Companies.** Covers primary strategy paradigms with particular emphasis on challenges of strategy in rapidly changing, highly uncertain technology-based industries. Primarily for graduate students. (http://www.stanford.edu/class/msande270/)

- **MS&E 271: Global Entrepreneurial Marketing.** Investigates the unique challenges of worldwide marketing in new ventures. It is designed to equip the engineer or scientist with the basic entrepreneurial marketing skills needs to launch and lead a new high growth, high technology venture in the global marketplace. Primarily for graduate students. (http://www.stanford.edu/class/msande271/)

- **MS&E 272: Entrepreneurial Finance.** Teaches future managers the financial perspectives and tools needed to make decisions in entrepreneurial environments. Students should have a working knowledge of basic accounting principles, income statements, balance sheets, discounted cash flows, and concepts such as the time value of money before enrolling in this course. For graduate students. (http://www.stanford.edu/class/msande272/)

- **MS&E 273: Technology Venture Formation.** Focuses on the creation of high technology ventures. Student teams prepare a business plan as a key deliverable. For graduate students. (http://www.stanford.edu/class/msande273/)

- **MS&E 274: Building Dynamic Entrepreneurial Organizations.** Focuses on the dynamic development of corporate skills, knowledge, and infrastructure needed to compete in a changing global environment. (http://www.stanford.edu/class/msande274/)

- **MS&E 276: Managing to IPO: Control Systems.** Examines how firms evolve and adapt their control/information systems when changes occur in their markets, technology, competition, and in their own internal capabilities.

- **MS&E 277: Creativity and Innovation.** Focuses on what makes people, groups and organizations work creatively. The course uses hands-on methods for increasing creativity and innovation. (http://www.stanford.edu/class/msande277/)

- **MS&E 278: Startup Globalization Strategies.** *(cross-listed as Business, G354).* Start-ups have adopted different approaches to considering the global marketplace. This course examines different approaches to globalization and how they are being employed in different places.

- **MS&E 376: Doctoral Research Seminar on Strategy and Organization.** Examines a variety of theoretical perspectives on strategy including debates surrounding the origins of competitive advantage, resource and knowledge-based views, complexity theory, transaction-cost economics, agency theory, and entrepreneurship. The seminar also aims to develop skills that are useful when pursuing an academic career, such as synthesizing research, understanding research designs, and building theories.

- **STVP PhD Research Seminar.** STVP organizes a quarterly informal brown bag lunch seminar to discuss current research topics in the areas of strategy, organization theory, and entrepreneurship in technology-based companies. Speakers include students and faculty members of the center plus colleagues from other departments at Stanford.

- **MS&E 472: Entrepreneurial Thought Leader Lectures.** This series brings industry leaders to speak, including world-class entrepreneurs, CEOs, investors, authors, and others. Offered quarterly. (http://www.stanford.edu/class/msande472/)

- **MS&E 473: Project course in Strategy and Modeling.** Teaches design and application of formal models in the study of strategy planning problems, including technology development, resource management, and uncertainty in a corporate setting .(http://www.stanford.edu/class/msande473/)

- **MS&E 478: Topics in International Technology Management.** *(cross-listed as Electrical Engineering, EE402A).* Theme for 2002-03 is broadband networks in Asia. Topics include technology and business factors impacting the growth of broadband wired and wireless networks in major Asian markets, for example new last-mile technologies, network topologies, and security solutions, and also deregulation and pricing, technology standards wars, capital investment patterns and international joint ventures. Distinguished speakers from industry and government.

University of California – Berkeley

- **Management of Technology (MOT) Core Courses** provide an integrated view of the critical aspects of technology management by focusing on: http://mot.berkeley.edu/courses/index.html

    - Manufacturing process technologies and their integration through Internet-based enterprise tools
    - New product development processes, tools and techniques
    - Marketing high technology products with high technology techniques
    - Managing R&D portfolios and development of technology alliances
    - International trade policy and its effect on high technology industry
    - Design issues and business strategies for new technology products in both established firms and new ventures

- Students need to take at least two of these **Operationally Oriented Courses** to fulfill the certificate requirement.

    - MBA 290M/ME 221: High-tech Product Design and Rapid Manufacturing (http://mot.berkeley.edu/courses/details/high_tech_pro_dsgn.html)
    - MBA 290N/IS 290/ME 290P: Managing the New Product Development Process (http://mot.berkeley.edu/courses/details/new_prod.html)
    - MBA 264: High Technology Marketing (http://mot.berkeley.edu/courses/details/hitech_mktg.html) ***or***
    - MBA 295T/ENG 298A/IS 290: Marketing for High-Tech Entrepreneurs (http://mot.berkeley.edu/courses/details/high_tech_entre.html) ***or***
    - MBA 262B: Internet Strategy **(MBAs Only)*** (http://mot.berkeley.edu/courses/details/internet_strat.html)

MBA's may count one of these courses as **core (MBA 264, MBA 295T, or MBA 262B). Second course will be counted as a **related** course.*

These are hands-on courses. High Tech Marketing teaches students the principles of marketing technological products in a technology-intensive environment. Internet Strategy helps students understand the major changes that the Internet is causing for marketing decision-making. The High-tech Product Design and Rapid Manufacturing course guides students through a product development cycle and places the fabrication process in the larger context of manufacturing. Students complete group projects in CAD/CAM and write case studies based on factory tours. In Managing New Product Development, students learn to manage the processes of developing new products and bringing them to market.

- **Strategically Oriented Courses**:
  - MBA 290A/ENG 298A/IS 290: Introduction to Management of Technology (http://mot.berkeley.edu/courses/details/introtomot.html)
  - MBA 296/ENG 298A/IS 290: Information Technology Strategy (http://mot.berkeley.edu/courses/details/itstrat.html)
  - MBA 290I/ENG 298A/IS 290: Managing Innovation and Change (http://mot.berkeley.edu/courses/details/innovation.html)
  - MBA 290G/ENG 298A: International Trade, Competition, and Policy In High Technology (http://mot.berkeley.edu/courses/details/int_trade.html)
  - MBA 290C/EECS C201/ENG 298A/IS C224: Strategic Computing and Communications Technology (http://mot.berkeley.edu/courses/details/strat_comp.html)

  These take a broader view of technology. Introduction to Management of Technology looks at what constitutes successful technological strategy. Managing Innovation and Change takes the CEOs perspective of technology management. International Trade and Competition addresses trade policy development in the high tech industry. Strategic Computing looks at the need for stronger partnerships between engineers and managers.

University of Central Florida (UCF) Engineering Entrepreneurship Certificate Program at KSC

- **Three Course Certificate Program:**
  - **Module 1: Engineering Entrepreneurship:** This module would be an introductory overview of Engineering Entrepreneurship and the students will start developing their business plan. The risks, rewards and challenges of entrepreneurship and the strategies and tactics to increase the chances of success are discussed in this module. If students are not comfortable with the Engineering Entrepreneurship Certificate program concept, they may drop out after this module and still be able to put together a preliminary business plan.

    Module 2: Technical Marketing and High Tech Product Strategy: This module would give the engineers a strong marketing orientation and shape their innovative high tech idea into the right product for the right customer, to further increase the chances of market success. This is very critical for engineers to develop paradigm pliancy and think in terms of the Whole Product, not just their generic technologies or products. (*See detailed description below).*

    Module 3: Project Management and General Operations Strategies for High Tech Startups: This module will cover Project Management Tools, Technology Commercialization Strategies and Legal, Financial and Management Issues for Startup Companies in the growth phase. This course will develop the entrepreneur's skills in project management and in marshaling the resources for launching a successful high tech venture: advisory board, employees, strategic partners, lawyers and capital. The

fundamentals of business leadership in the early-growth phase of a high tech venture would also be covered in this module.

The Final Business Plan: As part of the Certificate Requirement, the students would be required to write up and present a professional business plan and present it to the NASA / UCF Incubators and Technology Development / Commercialization Offices and also to Central Florida Investment Corporation and other interested VCs.

- **Special Topics: Technical Marketing / High Tech Product Strategy.** Product Strategy is the one of the most important (and very often the least understood) determinant of success for high tech companies. The unique challenges of a technology-driven start-up require new approaches to technical marketing and product strategy. This state-of-the-art course will address the formulation of specific high tech marketing and product strategies to increase the probability of market success. The emerging cross-functional principles of technical marketing will be examined from a whole product perspective. Marketing concepts and product strategies developed empirically from the experience of high tech startup companies will be studied. These will be more practical than theoretical and are intended to push technical marketing to the cutting edge. Through the incisive insights of leading high tech entrepreneurs and product strategy experts, numerous examples, cases studies and interactive discussions simulating the experience of high tech company executives, this comprehensive course will systematically cover almost all the issues high tech start-ups should consider in develop their marketing strategies. There are no prerequisites for this course. Course Outline:

    - Strategic Vision and Unique Challenges of Product Marketing in High Tech Startups
    - Knowing Customers and Markets – Selecting Markets – Market Segmentation
    - Competitive Intelligence
    - Product Platform Strategy and Product Line Strategy
    - Product Differentiation Strategy and Price-Based Strategy
    - The Whole Product Concept and Cannibalization Strategy
    - Improving Time to Market: Time-Based Strategy
    - Expansion Strategy and Global Product Strategy
    - Innovation Strategy, the Standards Process and Strategic Alliances
    - Communication Strategy for High Tech Products
    - Distributing and Selling High Tech Products
    - Strategic Balance and the Process of High Tech Product Marketing Strategy
    - Presentation and Evaluation of High Tech Product Marketing Plans

University of Connecticut, Chemical Engineering Department

- **Cheg 262: Engineering Entrepreneurship.** A growing portion of the engineering economy is comprised of small, fast moving startup companies seeking to capitalize on new technologies and services. The Internet is central to new startups because it enables entrepreneurs to launch their business rapidly and with little capital. Recognizing the importance of this new paradigm to our students, this course puts the students in the role of entrepreneur so they can "learn by doing." Each student is building a website that details a plan to launch a company. One exciting aspect of this course is the breadth of material the students must confront. Launching a tech start-up begins with the "bright idea" that must be protected with patents, copyrights and trademarks. A host of economic and management issues such as performing a market analysis, raising venture capital, and deciding how to sell their product or service quickly follow. Visit their web pages and see how they are doing! http://www.engr.uconn.edu/cheg/ee/

University of Iowa

- **Certificate in Entrepreneurship (Undergraduate).** All University of Iowa undergraduate students may earn a Certificate in Entrepreneurship in addition to their major. Aspiring entrepreneurs will develop their innovative, creative and leadership skills through several activities, including interactive courses, student entrepreneurial association, guest speaker series, business plan competitions, and one-on-one mentoring. The JPEC provides all University of Iowa undergraduate students a broad range of opportunities to foster and support their entrepreneurial studies. The program not only serves students who intend to start their own company someday, but it also provides students insight into how entrepreneurial firms operate. Students learn from a select team of University faculty and business leaders, chosen for their ability to teach, model and inspire the entrepreneurial process. The following four courses are required for the Certificate in Entrepreneurship and are offered every fall and spring semester.

    - **06T:120 – Entrepreneurship and New Business Formation.** This course is an introduction to the entrepreneurial process from conception to birth of a new venture. It discusses attributes of successful entrepreneurs, innovation and creativity, opportunity recognition, venture screening, identification of resources, and feasibility analysis.

    - **06T:133 – Capital Acquisition & Cash Flow Management.** This course helps students understand the process of capital acquisition and cash flow management. It explains techniques, projections, and measurements used in valuing and funding new and growing ventures. It also teaches how to identify sources and strategies for raising capital.

    - **06T:134 – Entrepreneurial Marketing**. This course provides practical marketing concepts for determining the market potential of a business; developing a marketing plan, identifying markets, creating products, designing promotions and sales programs, and assessing ongoing customer service needs.

    - **06T:134 – Managing the Growth Business.** This course examines issues faced by newly formed businesses experiencing rapid growth. It focuses on adapting a company's organizational structure as business expands, building a management team, hiring new employees, and managing the strategic growth of a business. It will examine several case studies particularly in the technology sector.

- **Electives**. The following electives provide students additional opportunities to develop their entrepreneurial and technical skills. These courses focus on specific topics important to entrepreneurs and build upon topics discussed in the required Entrepreneurship and New Business Formation.

    - 06T:141-Technology Applications for the Entrepreneur (http://www.biz.uiowa.edu/entrep/undergraduates/06T_141.html)
    - 06T:142 - Innovation and Change Technology Applications for Entrepreneurs (http://www.biz.uiowa.edu/entrep/undergraduates/06T_142.html)
    - 06T:145 - Legal Aspects of Entrepreneurship (http://www.biz.uiowa.edu/entrep/undergraduates/06T_145.html)
    - 06T:146 -Strategic Management of Technology and Innovation (http://www.biz.uiowa.edu/entrep/undergraduates/06T_146.html)
    - 06T:150 - Managing the Growth Business (http://www.biz.uiowa.edu/entrep/undergraduates/06T_150.html)
    - 06T:190 - Seminar in Entrepreneurship (http://www.biz.uiowa.edu/entrep/undergraduates/06T_190.html)
    - 06T:192 - Entrepreneurship: Business Consulting (http://www.biz.uiowa.edu/entrep/undergraduates/06T_192.html)
    - 06T:194 - Entrepreneurship: Business Consulting (http://www.biz.uiowa.edu/entrep/undergraduates/06T_194.html)

- 06T:199 - Academic Internship (http://www.biz.uiowa.edu/entrep/undergraduates/06T_199.html)
- 06J:101- Directed Readings (with JPEC Director Hensley)

University of Pennsylvania School of Engineering and Applied Science

- **Engineering Entrepreneurship Program:** The Program offers a sequence of two courses designed to supplement a students' engineering education. These courses are offered at both undergraduate and graduate levels. The first course provides an introduction to the early phases of a high-tech venture. It investigates the elements needed to seize an entrepreneurial opportunity and successfully launch a startup or spin-off company. The second course investigates the necessary steps for planning a high-tech venture. It provides students, working in teams of 3 or 4, an opportunity to develop and present a high-tech business plan. Throughout the 2-course sequence, emphasis is placed on the sequential risks and determinants of success in high-tech entrepreneurial ventures. http://www.seas.upenn.edu/ent/.

- **Courses Descriptions:**

  - **EAS345/545.** The first of the two courses investigates key entrepreneurial areas of: (a) intellectual property, its protection and related strategies; (b) evaluating the market viability of new high-tech ideas; (c) shaping high-tech ideas into the right products or services for the right markets; (d) developing strategies for high-tech product positioning, marketing and operations; (e) acquiring the resources needed to start a new venture, e.g., people, financing, strategic partners, etc.; and (f) leadership roles for the founders of high-tech ventures.

  - **EAS346/546.** The second of the two courses investigates the key elements of planning an entrepreneurial high-tech venture including: (a) defining the venture's industry and market; (b) developing strategies for high-tech product positioning, marketing, distribution, sales, operations, management and development; and (c) preparing a financial plan. Effective written and verbal presentation skills are emphasized throughout the course.

- **Pedagogic Approach.** The first course is taught through the use of classroom lectures, case study discussions, and guest speakers. Assignments include readings and case studies, essay assignments on the case studies, and problem sets. Student teams also complete a term project requiring them to evaluate the market viability of an innovative high-tech product or service. The second course on high-tech business planning is taught through the use of classroom lectures, discussions of assigned readings, and the stepwise preparation and presentation of a high-tech business plan by student teams. The plans are ultimately presented to and reviewed by an experienced blue-ribbon panel of investors, advisors and entrepreneurs.

Appendix E

Medical School Entrepreneurship Curriculum and Course Descriptions

Georgia Institute of Technology

- Georgia Institute of Technology's affiliation with **Emory University School of Medicine** to jointly sponsor the Wallace H. Coulter Department of Biomedical Engineering:
    - **Principles of Management Course Overview.** This course is required for the certificate and is a prerequisite for the other courses in the certificate program. It is normally offered every semester. The course provides a broad overview of the key concepts, tools and techniques needed to be successful in the biomedical technology and health care industries. It introduces the basic functional areas of management such as accounting and marketing, and utilizes appropriate biotechnology industry applications and cases. Faculty members in Management jointly prepared this course with Dr. David Ku and Dr. Terry Blum coordinating the development and delivery of the course. (http://www.entrepreneurship.gatech.edu/Certificate/Mgmt 6753 Fall 2002 syllabus1.htm)

Karolinska Institutet

- **Stockholm School of Entrepreneurship (SSES) Course offerings.** Eight courses are currently offered by SSES on entrepreneurship: http://www.sses.se/public/frameset.asp?section=exed
    - **Growing Young Firms.** The course focuses on the decisions owner-managers make in recognizing and choosing opportunities, obtaining and allocating resources, challenging and directing personnel, and adapting personal goals and corporate strategies to changing personal and business conditions. In this process, the course examines management challenges that are typical of different stages in the business's development – start-up, growth, change of direction, etc. Using this framework, the course will discuss issues of particular importance to rapidly growing firms such as establishing and communicating vision, developing networks, managing with limited resources, cash planning, delegation, and professionalizing the business as it grows, while at the same time being careful to avoid stifling the entrepreneurial spirit as the organization becomes larger and more impersonal.
    - **Creating a Business Opportunity.** Thinking up an interesting business idea is not the end of the process. In fact, it is just the beginning. This idea must be developed into a business concept and a true business opportunity through market and competitive analysis. This subject demands innovative and entrepreneurial work and requires creativity and problem solving skills. The course will further encompass finding or creating business ideas; business concept development with a focus on the birth and choice of ideas; competitive analysis; strategy development; team, organization, and network development; financing alternatives. During the course the students will be challenged to identification of needs, to find and create business ideas, to develop business concepts and opportunities, among other things.
    - **Creating a Business Plan.** People with real life experience gained from entrepreneurial work and business development will give some of the scheduled lectures during the course. Students can work individually, or in groups, to develop their ideas into business plans. Ideas and plans will be discussed at seminars attended by co-students and a 'coach'. The objective of the seminars is to provide students with a forum to discuss their ideas with other students who study different disciplines and who bring to the seminar a variety of skills and business ideas. Toward the end of the seminar series the main

objective changes to producing a business plan and to discussing the possibility of successfully launching the different business ideas.

- **Creating Brand Identity**. In an increasingly competitive business environment the brand identity of a product has become an important decision making criteria for the consumer. In this course you will learn: insights into how to develop a superior Brand Identity; and tools to plan, implement and expand a differentiating Brand Identity for a business. This will incorporate the different aspects of identity such as graphic appearance, product design, environmental appearance and distribution channels.

- **Creating Intelligence.** The course introduces a rich spectrum of methods that can be used in the organizational structure and processes to facilitate awareness of the business environment. It covers methods to search, select, retrieve, analyze and disseminate information as well as methods, structures and processes that indirectly influence the optimal awareness of the business environment.

- **Science Based Companies.** The course deals with development and management of science based businesses, with a focus on commercializing innovations. People who have experience in starting and running knowledge-intensive young businesses will give the lectures. The students will share the practical experience that these lecturers have to offer and will get advice on issues such as raising venture capital, recruiting staff and strategic planning.

- **Creating Design.** The course will guide the students through the whole design process, giving hands-on experience from tasks such as idea generation, form studies and decisions, design methodology, presentation techniques etc. This will give a greater understanding for the work of the designer and capability to use design as a strategic tool.

- **Finance for Start-Ups.** The objective of this course is to enhance students' understanding of the dynamic challenges faced by entrepreneurial ventures in securing financial backing to support future growth and development. We shall examine these challenges in a variety of industry settings and stages of venture development both from the capital seeker (entrepreneur) and capital provider (investor) perspectives.

- **Intrapreneurship**. The course will address the following areas. The role of the intrapreneur and the role of the individual in the process of organizational change and development, by utilizing case studies from business and governmental organizations· The process of change and the role of the change agent· Team building and group dynamics· Innovation management· Creativity and conflict resolution· The organization from a administrative perspective· The role of power· Corporate venturing

- **Entrepreneurship in Networks.** Successful entrepreneurs and successful entrepreneurial companies in the knowledge-based sector of the new economy tend to cluster in specific regions around the United States. It is well known that the growth of IT companies, computer science companies and now bioscience companies does not happen at random but in a social and regional contexts. The focus of the course this spring will be the dynamic relationship between entrepreneurial enterprises anchored in regional innovation systems and global corporate innovation systems. Professor Walshok will provide lectures and experiences drawn from operating in regional innovation systems San Diego and the Silicon Valley in California. Professor Adler will provide lectures and experiences drawn from operating in global corporate innovation systems in companies such as Ericsson, Volvo and AstraZeneca. The filed research topics this spring will allow student teams to explore corporate and regional innovation systems in order to illustrate how innovation regionally anchored entrepreneurship and corporate innovation complement one another.

Stanford University

- **Stanford Biodesign Innovation Program** (http://innovation.stanford.edu/jsp/index_flash.jsp)
  - *Fellowship Track*
    - **Needs Assessment.** After a series of basic training lectures in the target clinical field and a specially formulated team-building exercise, the Fellows will begin the term with a five-week, in-hospital immersion focusing on a subspecialty of medicine. They will round in the intensive care units and on the wards at Stanford, observe cases in the procedure laboratories and operating rooms and attend teaching conferences with the clinical fellows. The Fellows will also visit neighboring hospitals to round and observe cases for a real world perspective on subspecialty technologies and practices. The goal is to identify the most important clinical needs facing healthcare providers and patients in this subspecialty. The Fellows will work together to perform literature and patent searches, assess clinical and technical feasibility, and forecast clinical and market impact, with the ultimate goal of creating a 'need specification' for each clinical need discovered. In parallel, the elective students will work on several additional need specifications that were also discovered during the clinical immersion period. The Fellows and the elective student teams will present these needs specifications to an expert panel composed of representatives from the clinical, basic science, engineering, entrepreneurial, investment, and corporate sectors.
    - **Conceptualization.** The winter term will focus on brainstorming and incubating ideas. This is an iterative process that includes suggesting, discarding, resurrecting, and reconfiguring concepts. The Fellows will make use of the early prototyping resources, working in their own Biodesign Studio and the affiliated Product Realization Laboratory. Fellows will create, investigate, build, and assess their own solutions to the key clinical needs discovered in the immersion phase, and develop initial models of their concepts (both computer-simulated and actual). By the end of the term the Fellows will have chosen several new concepts to be carried forward to actual development. This sorting and prioritizing process will involve extensive input from faculty coaches, particularly venture capitalists, successful inventors, and other professionals in the medical technology community. During the winter term the Fellows will continue to have close interaction with the elective students, and will serve as coaches to catalyze the process of brainstorming, and prioritizing of ideas. In addition, Fellows will have the opportunity to work with students from the business school and engineering school to accelerate the product development and business planning at this stage. At the end of the quarter, final concepts will be presented to an expert panel composed of representatives from the clinical, basic science, engineering, entrepreneurial, investment and corporate sectors.
    - **Planning and Implementation.** In this final quarter Fellows are expected to pull it all together. Having characterized real clinical needs and developed concepts to solve them, the Fellows will identify the best paths to take the ideas forward. This may take the form of a new research program, a licensing strategy, further incubation, or the creation of a new start-up company. While prototyping and development will continue, the main focus of the activity during this phase will be to create final business or development plans for each new concept being considered for launch. In addition to receiving instruction from the lecture series, Fellows will be offered the opportunity to visit and shadow professionals from one or more of the local incubators, venture capital firms, medical technology companies, and academic clinical trial centers. Fellows will work collaboratively with the elective students in small teams to create a full business or development plan for each of the areas identified. Similarly to each of the preceding quarters, these plans will be presented formally to an expert panel composed of representatives from the clinical, basic science, engineering, entrepreneurial, investment, and corporate sectors.

- *Elective Track:*

  - **Technology Solutions to Clinical Needs.** In the winter quarter, students will focus on the process of creating effective, technology-based solutions to important clinical needs. Experts from Stanford and industry will lecture on brainstorming methods and the design process. The basics of modeling will be presented, including an introduction to techniques for computer simulation and virtual prototyping. Students will also learn the methods and resources available for actual prototyping, working with the different fabrication facilities on campus and outside of Stanford. Students will have an in-depth introduction to regulatory (FDA) issues and the strategies involved in designing an effective clinical trials program. The critical area of reimbursement for new health technologies will also be reviewed. The term will finish with lectures on failure analysis and a series of case studies. The project portion of the course will consist of identification of the key concepts to be carried forward into prototyping. The students will group into small teams of 3-4 persons in the development of computer or actual models of core concepts. They will conduct brainstorming sessions in which these early ideas are critiqued and refined. The work product for the term will be a written and oral presentation of the concept. This will include a prototype and a preliminary strategy for patenting, clinical development, and reimbursement.

  - **Strategy.** In the final quarter, students will learn how to evaluate and create the appropriate strategy for a new medical technology. Students will estimate the funding requirements for development of their projects – either as research programs or as licensing, incubation, or start-up opportunities. They will explore how to assess the regulatory, clinical, and legal hurdles for different types of projects. Other key topics will be strategic planning, the art of valuation, negotiation techniques, start-up team creation, biomedical ethics, risk management, and financing strategies. Case studies of major technology breakthroughs will be analyzed and different approaches to managing new ventures will be reviewed. The students will divide into project teams to develop strategies for implementation of one or more key ideas. They will work with the Fellows, faculty, OTL personnel, and outside coaches to develop research plans, licensing strategies, or plans for a start-up depending on the particular technology. The quarter will conclude with a presentation of the plans to an expert group including experienced venture capitalists and executives from the medical technology industry.